RGPV(DiplomaWing)Bhopal	SEMESTERTEACHINGLEARNING&ASSESSMENTPLAN	FORMAT-6

NAMEOF PROGRAMME	THREEYEARSDIPLOMA	SCHEME	OBE	IMPLEMENTINGYEAR	2020-21

BRANCHCODE	A03	NAMEOF BRANCH	AUTOMOBILEENGINEERING	SEMESTER	FOURTH

S. No	COURSEDETAILS					T-LPLAN		ASSESSMENTPLAN								
	COURSE CODE	COURSE NAME	PAPER CODE	No. of COs	No. of LOs	Total T-L Hrs.	T-L Hrs. /Week	Internal Assessment		ExternalAssessment(UniversityExam)						Grand Total of Marks
										TheoryPaper			PracticalExam*			
								No.of LOs	Total Marks	No.of LOs	Total Marks	Duration	No.of LOs	Total Marks	Duration	
1	401	AUTOENGINE-II	6953	05	15	120	08	05	50	07	70	03HRs.	03	30	03Hrs.	150
2	402	AUTOCHASSIS-II	6954	05	15	120	08	05	50	07	70	03HRs.	03	30	03Hrs.	150
3	403	VEHICLEBODY ENGINEERING		05	11	90	06	08	40	-	-	-	03	60	03Hrs	100
4	404	BASICSOFMECHANICAL ENGG.-II	6955	04	12	105	07	05	30	07	70	03HRs.	-	-	-	100
5	405	PROFESSIONAL DEVELOPMENT-IV		03	06	60	04	06	75	-	-	-	-	-	-	75
TOTAL				22	59	495	33	29	245	21	210	-	09	120	-	575
No.ofTheoryPapers												03	No.ofPracticalExams03			-

ExamforLOs(Psycho+Affect.)perbatch of20students*

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

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and components about given front axle /Steering System**
LO Description	**Student will be able to explain theory/construction/components/working of front axle & front wheel geometry 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	Need of front axle, functions of front axle, loads on front axle, construction details, types of front axle, directional stability, front wheel geometry: castor, camber, king pin inclination, toe-in, and toe-out.	Lecture method	Teacher will organize lecture inside the class based on his/her session plan. Discuss the topics with students, provide quiz, assignment etc.	5	2	• Automobile Engg. by R.B.Gupta SatyaPrakashan New Delhi • W.H. Crouse “Automotive mechanics”, Tata McGraw-Hill Publishing Co., New Delhi.	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	4	0	2	1	2

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and components about given front axle / Steering System**
LO Description	**Student will be able to explain theory /construction / working / components of Steering System 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	Conditions for true rolling, Centre point steering, steering geometry, Ackermann and Davis steering system, construction, working and components of car steering system, constructional details of steering linkages, different types of steering gear boxes, wheel wobble, collapsible steering, and power assisted steering, electronic steering system	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	03	• Automobile Engg. Vol.1 by Singh, Kripal Standard publishers New-Delhi • Automobile Engg. by R.B.Gupta, SatyaPrakashan, New-Delhi	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 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	4	0	2	1	3	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and components about given front axle /Steering System**
LO Description	**Student will be able to identify various components of given front axle / steering 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	Study of locations, constructional features and functions of various components of front axles / steering systems	Lab demonstration method	Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher.	05	02	Cut-sectioned/ working models, disassembled front axle and steering system, different components and sub-assemblies	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 students five components in practical examination	10	Cut-sectioned/ working models, disassembled front axle and steering system, different components and sub-assemblies, rating scale	External

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	4	0	2	2	1	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and components of the vehicle suspension system**
LO Description	**Student will be able to explain theory, construction and components of given suspension system 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	Purpose of suspension, various elements of suspension system, theory and construction of helical and leaf springs, their comparison and uses, spring deflection, spring stiffness, energy stored, principle and construction of torsion bar spring, stabilizers	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 Kripal, Standard publishers N.Delhi • Vehicle suspension system and electromagnetic dampers by kashem, Nagarajah Publication Springer	If necessary teacher will suggest 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 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	4	0	3	2	2	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and components of the suspension system**
LO Description	**Student will be able to explain various effects of spring-suspension on riding comfort and devices used to neutralize them 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	Principle of shock absorbers, construction and working of telescopic shock absorber, study and comparison of different types of front axle suspension system, effect of driving, braking, side thrust &torque reaction on suspension, Hotchkiss drive & Torque tube drive. Anti squate and antidive system, Concept of air suspension.	Traditional Lecture method	Teacher will explain 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	• Automotive mechanics by William H Crouse, Tata McGraw-Hill Publishing Co., New Delhi • Vehicle suspension system and electromagnetic dampers by kashem, Nagarajah Publication : Springer	If necessary teacher will suggest 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	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	4	0	2	2	3	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and components of the suspension system**
LO Description	**Student will be able to identify various components of given Suspension 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	Study of locations, constructional features, functions of various components of different types of suspension systems	Lab demonstration method	Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher.	05	02	Cut-sectioned/ working models, disassembled suspension systems, different components and sub-assemblies	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 students five components in practical examination	10	Cut-sectioned/ working models, disassembled suspension systems, different components and sub-assemblies, rating scale	External

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	4	0	2	3	1	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and components of the Mechanical Brake System**
LO Description	**Student will be able to explain theory, construction and Component of Mechanical Brake System 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	Theory of braking Classification of brakes, service & parking brake, theory and construction of disc & drum brakes, mechanical brake actuating system, leading & trailing shoes	Traditional Lecture method	Teacher will explain different concepts. 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. Vol.1 by Singh, Kripal Standard publishers New-Delhi • Automotive mechanics by William H Crouse, Tata McGraw-Hill Publishing Co., New Delhi	If necessary teacher will suggest 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 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	4	0	2	3	2	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and components of the Mechanical Brake System**
LO Description	**Student will be able to explain the difference, merits and limitations of the given Brake 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	Comparison between Disc & Drum brakes, merits and limitations of Mechanical brake actuating system	Traditional Lecture method	Teacher will explain different concepts. 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	01	• Automobile Engg. by R.B.Gupta SatyaPrakashan New Delhi	If necessary teacher will suggest 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 questions related to the learned content will be asked in the test paper	05	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	4	0	2	3	3	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and components of the Mechanical Brake System.**
LO Description	**Student will be able to identify various components of the Mechanical Brake 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	Study of locations, constructional features, functions of various components of disc and drum brakes, parking brakes and Mechanical brake actuating system	Lab demonstration method	Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher.	04	02	Cut section / Working Models, disassembled braking systems and components of the braking systems	If necessary teacher will suggest 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	Teacher will ask the student to identify five major components in a group or arrangement of variety of components	10	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

3- Correctness of identification of fourth component 3- 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	4	0	2	4	1	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and components of the Hydraulic / Pneumatic / Servo Brake System**
LO Description	**Student will be able to explain theory, construction and Component of Hydraulic / Pneumatic / Servo Brake System 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	Study of hydraulic, pneumatic and servo brake actuating systems regarding their construction, working and components, brake lining material, brake fluid characteristics, purpose and theory of dual brake system, exhaust brakes, antilock braking, retarders, Eddy current retarders, permanent magnet retarders, hydraulic retarders.	Traditional Lecture method	Teacher will explain different concepts. 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	10	04	• Automobile Engg. Vol.1 by Singh, Kripal Standard publishers New-Delhi • Automotive mechanics by William H Crouse, Tata McGraw-Hill Publishing Co., New Delhi	If necessary teacher will suggest 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	Four theory questions related to the learned content will be asked in the university question paper	20	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	4	0	2	4	2	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and components of the Hydraulic / Pneumatic /Servo Brake System**
LO Description	**Student will be able to explain the difference, merits and limitations of the given Brake 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	Comparison between hydraulic & Pneumatic / servo brake actuating systems	Traditional Lecture method	Teacher will explain different concepts. 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. by R.B.Gupta SatyaPrakashan New Delhi • Automotive Braking System. By Thomas W Birch. Publisher : S.Chand (G/L) & Company Ltd; 3rd edition	If necessary teacher will suggest 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	05	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	4	0	2	4	3	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and components of the Hydraulic / Pneumatic/ Servo Brake System**
LO Description	**Student will be able to identify various components of the Hydraulic / Pneumatic / Servo Brake 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	Study of locations, constructional features, functions of various components of Hydraulic/ Pneumatic/ servo brake actuating systems	Lab demonstration	Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher.	06	02	Cut sectioned / Working Models, disassembled the braking systems and components of the braking systems	If necessary teacher will suggest 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	Rating scale	External

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 - Correctness of identification of fourth component - 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	4	0	2	5	1	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and working the battery electric and hybrid electric vehicles.**
LO Description	**Student will be able to explain theory, construction and Component of electric and hybrid Electric Vehicle 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	Environmental concerns with traditional vehicles, need of electric vehicles, benefits of electric vehicles, types of electric vehicles, brief history of electric vehicles, theory, construction and working of battery electric and hybrid electric vehicles*, additional infrastructure needed for transportation system based on electric vehicles	Traditional Lecture method	Teacher will explain different concepts. 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	10	03	M. Ehsani, Y. Gao, S. Gay and Ali Emadi, Modern Electric, Hybrid Electric, and Fuel Cell Vehicles: Fundamentals, Theory, and Design, CRC Press, 2005	If necessary teacher will suggest video link, learning resources *two & four wheelers

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 question paper	10	Question paper	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	4	0	2	5	2	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and working of the battery electric vehicle and hybrid electric vehicle.**
LO Description	**Student will be able to explain theory and working of different types of hybrid electric vehicle drive trains**

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 hybrid electric vehicle drive trains, different types of hybrid drive trains, types by degree of hybridization, types by the power source, Architecture of hybrid electric drive trains, Series and parallel hybrid electric drive trains	Traditional Lecture method	Teacher will explain different concepts. 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	03	• Iqbal Husain, Electric and Hybrid Vehicles: Design Fundamentals, CRC Press, • Electric and hybrid electric vehicle: By Tom Denton published by Routledge	If necessary teacher will suggest 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 question paper	10	Question paper	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	4	0	2	5	3	

COURSE NAME	**AUTO CHASSIS – II**
CO Description	**Student will be able to explain theory, construction and working of the electric and hybrid electric vehicle.**
LO Description	**Student will be able to compare electric / hybrid vehicle with traditional engine operated vehicle regarding construction, working, 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 electric / hybrid vehicle* with traditional engine operated vehicle regarding construction, working, merits and limitations, brief case study of commercially available 2/4 wheeled electric hybrid vehicles	Lab demonstration	Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher	03	02	M. Ehsani, Y. Gao, S. Gay and Ali Emadi, Modern Electric, Hybrid Electric, and Fuel Cell Vehicles: Fundamentals, Theory, and Design, CRC Press, 2005	If necessary teacher will suggest video link, learning resources *two and four wheelers

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Paper pen test + Assessment of short report	(1) Teacher will ask one question related with learned content in the test (5 marks) (2) Teacher will assess the short report submitted by student on commercial 2/4 wheeled hybrid vehicles (5 marks)	10	Teat paper, rating scale	Internal

INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Criteria for assessment of short report: - 1. Extent of quality in study (03 marks) 2. Extent of quality in reporting (02 marks)

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

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to explain about theory, construction and components for given diesel engine**
LO Description	**Student will be able to explain theory/construction/components/working of diesel 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 diesel engine, dual combustion cycle, actual diesel and dual combustion cycles, Types of diesel engines, working principle, construction and operation, Valve timing diagram, significance of firing order, study of engine specifications for LCV, HCV, and SUV	Lecture method	Teacher will organize lecture inside the class based on his/her session plan. Discuss the topics with students, provide quiz, assignment etc.	08	04	• Automobile Engg. by R.B.Gupta SatyaPrakashan N. Delhi • Automobile Engg. by K.K.Jain & Asthana Tata McGraw-Hill Publisher • W.H. Crouse “Automotive mechanics”, Tata McGraw-Hill Publishing Co., N. Delhi.	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, 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	4	0	1	1	2	

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to explain about theory, construction and components for given diesel engine**
LO Description	**Student will be able to compare the diesel engine with the 4S petrol engine regarding construction, 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 4S petrol Engine & diesel Engine regarding their construction, merits and limitations.	Lecture method	Teacher will organize lecture inside the class based on his/her session plan. Discuss the topics with students, provide quiz, assignment etc.	04	03	• Automobile Engg. by R.B.Gupta SatyaPrakashan N. Delhi • Automobile Engg. by K.K.Jain & Asthana Tata McGraw-Hill Publisher • W.H. Crouse "Automotive mechanics", Tata McGraw-Hill Publishing Co., N. Delhi.	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	4	0	1	1	3	

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to explain about theory, construction and components for given diesel engine**
LO Description	**Student will be able to identify various components of diesel 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	Study of locations, constructional features, functions of various components of diesel engines	Lab demonstration method	Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher.	04	03	Cut-sectioned/ working models, disassembled engines, different components and sub-assemblies	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 engine components	10	Cut-sectioned/ working models/ disassembled engines/ different components and sub-assemblies, Rating scale	External

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	4	0	1	1	4	

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to explain theory, construction and components about given diesel engine**
LO Description	**Student will be able to locate the position of various components in relation to other components in the given diesel 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 diesel 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	Cut-section / working models of diesel 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 diesel engine during practical examination	10	Cut-section/ working model of diesel engines, Rating scale	External

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	4	0	1	2	1

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to explain combustion process, reasons and remedies for knocking in diesel engines**
LO Description	**Student will be able to explain combustion process in diesel 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 CI engine, stages of combustion, factors affecting delay period, related line diagrams, Combustion chamber for diesel 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	• Sharma & Mathur "Internal Combustion Engines" Dhanpat Rai and sons, N. Delhi • Ganesan.V "Internal Combustion Engines", Tata McGraw-Hill Publishing Co., N. Delhi.	If necessary teacher will suggest 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 test 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	4	0	1	2	2

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to explain combustion process, reasons and remedies for knocking in diesel engines**
LO Description	**Student will be able to explain reasons and remedies for the diesel knock in diesel 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 diesel engine, Various reasons for diesel knock, effect of engine variables on knocking, important properties of diesel, IS Code for diesel , Cetane number, Fuel additives, remedies for the diesel knock, comparison of detonation and diesel knock	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	• Sharma & Mathur “Internal Combustion Engines” Dhanpat Rai and sons, N. Delhi • Ganesan.V “Internal Combustion Engines”, Tata McGraw-Hill Publishing Co., N. Delhi.	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)

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

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to explain theory, construction, working and components about fuel injection system used in the given diesel engines**
LO Description	**Student will be able to explain theory/construction/working/ components of given fuel supply and injection system for diesel engine 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	Theory of Diesel fuel injection, Description and function of common rail system, different types of fuel injector, rotary pump, types of governors, Types of diesel filters, fuel feed pump. Clean diesel technology, Common Rail Diesel Injection system, Hydraulically Actuated Electronically Controlled Unit Injector, Sensors, actuators and ECU.	Traditional Lecture method	Teacher will explain different concepts. 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	03	• Automobile Engg. Vol.2 by Singh, Kripal Standard publishers New-Delhi • Ramalingam, K.K. "I.C. Engines Theory & Practice", Scitech Publisher Chennai • W.H.Crouse "Automotive Mechanics" Tata McGraw-Hill Publishing co., New-Delhi	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, 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	4	0	1	3	2	

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to explain theory, construction and components about fuel injection system used in the given diesel engines**
LO Description	**Student will be able to compare the two given fuel injection systems for their construction, 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 between (a) conventional fuel injection system and CRDI (b) mechanical & electronically controlled diesel injection system, (c) direct injection, multi-port injection and throttle body injection Regarding their construction, merits and limitations	Traditional Lecture method	Teacher will explain different concepts. 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	6	3	• Automobile Engg. by R.B.Gupta, SatyaPrakashan, New Delhi • Ganesan.V “I.C. Engines”, Tata McGraw-Hill Publishers., New Delhi,	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	4	0	1	3	3	

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to explain theory, construction and components about fuel injection system used in the given diesel engines**
LO Description	**Student will be able to identify the different components of given fuel supply and injection system for diesel engine**

SCHEME OF STUDY

S. No.	Contents	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Study of location, constructional features, functions of various components of different types of fuel injection system.	Lab demonstration method	Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher.	06	03	• Cut-section / 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 student to identify five different components in the given diesel engine fuel injection system during practical examination	10	Cut-section / working models, different components and sub-assemblies, Rating scale	External

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	4	0	1	4	1

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to improve the IC engine performance through performance measurement and suggesting additional devices**
LO Description	**Student will be able to calculate specific fuel consumption, volumetric efficiency, indicated power and dissipation of heat from given test 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	Specific Fuel Consumption, Volumetric Efficiency, Heat balance sheet, Indicated Power, Dynamometer and its types, study of various tests conducted on dynamometer, methods of calculating various engine performance indicators from given data, simple numerical problems based on use of formula	Traditional Lecture method	Teacher will explain different concepts. 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	• Ganeshan V. I.C. Engines Tata Mc-Graw Hill Publishing Co. Ltd. • R. K. Rajput A Textbook of Internal Combustion Engines Laxmi Publication Ltd.	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 paper	One simple numerical question will be asked in theory paper to calculate the value of engine performance indicator from the given engine test data using the formula	10	Question Paper	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	4	0	1	4	2	

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to improve the IC engine performance through performance measurement and suggesting additional devices**
LO Description	**Student will be able toexplain the purpose, theory, construction and working of turbocharger and supercharger with the help 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	Need, purpose of supercharging, turbo-charging, construction & Working of supercharger and turbocharger, types of superchargers and Turbo-chargers, Intercoolers.	Traditional Lecture method	Teacher will explain different concepts. 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	• S. Srinivasan "Automotive Mechanics" Tata McGraw-Hill Education • W.H.Crouse"Automotive Mechanics"Tata Mc-Graw Hill Publishing Co. Ltd	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	4	0	1	4	3

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to improve the IC engine performance through performance measurement and suggesting additional devices**
LO Description	**Student will be able tocompare the turbocharger and supercharger for their construction, 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 between various types of supercharger, between supercharger and turbo-charger, for their construction, merits and limitations	Traditional Lecture method	Teacher will explain different concepts. 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	• Anil Chhikara"Automobile Engineering vol-1 " SatyaPrakashan, New Delhi • W.H.Crouse& D.L. Anglin "Automotive Mechanics" Tata Mc-Graw Hill Publishing Co. Ltd.	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 will be asked in the question paper	10	Question paper	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	4	0	1	5	1	

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to explain the requirements and characteristics of alternative fuels, lubricants and coolants used in IC engines**
LO Description	**Student will be able to explain the important characteristics of given alternative fuel 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	Need of alternative fuels, Fuel properties, Classification of alternative fuels. **Fuels for SI engines** such as Compressed Natural Gas (CNG), Liquefied Petroleum Gas (LPG), Biogas and Methanol **Fuels for CI engines** such as Di-Methyl Ether(DME), Di-Ethyl Ether, bio-diesel, Hydrogen (H_2)	Traditional Lecture method	Teacher will explain different concepts. 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	• S.S.Thipse " Alternative Fuels" Jaico Publisher • Ramalingam, K.K. "I.C. Engines Theory & Practice", Scitech Publisher Chennai	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, 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	4	0	1	5	2	

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to explain the requirements and characteristics of alternative fuels, lubricants and coolants used in IC engines**
LO Description	**Student will be able to explain the important characteristics of given lubricant for the 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	Need of lubricants, Function of lubricating oil, Properties of lubricants, Types of lubricants, Study of important characteristics of main commercially available lubricants, nomenclature /SAE codes for commercial lubricants	Traditional Lecture method	Teacher will explain different concepts. 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	• Ramalingam, K.K. "I.C. Engines Theory & Practice", Scitech Publisher Chennai • Jain K.K., Asthana R.B.Automobile EngineeringTata Mc-Graw Hill Publishing Co. Ltd.	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, 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	4	0	1	5	3	

COURSE NAME	**AUTO ENGINES – II (DIESEL ENGINES)**
CO Description	**Student will be able to explain the requirements and characteristics of alternative fuels, lubricants and coolants used in IC engines**
LO Description	**Student will be able toexplain the important characteristics of the given coolant for the 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	Requirement of coolant, Functions of coolant, Types & Characteristics of Coolant , and their effect on engine cooling, additives, study of characteristics of main commercially available coolants, nomenclature of main commercially available coolants	Traditional Lecture method	Teacher will explain different concepts. 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	02	• Ramalingam, K.K. "I.C. Engines Theory & Practice", Scitech Publisher Chennai • S. Srinivasan "Automotive Mechanics" Tata McGraw-Hill Education	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 university question paper	10	Test paper, Check list	Internal

INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 1/5

Branch	Automobile Engineering	Semester	Fourth
Course Code	404	Course Name	Basics of Mechanical Engineering-II

Course Outcome 1	Student will be able to calculate values of various parameters related to flow of water in a pipeline	T-L Hrs	Marks
Learning Outcome 1	**Student will be able to calculate the value of water pressure in a given problem, at any cross-sectional area of the pipe using continuity equation**	**08**	**05**
Contents	Important Properties of liquid- Viscosity, density, , specific gravity, various types of pressure – atmospheric pressure, gauge pressure, absolute pressure, vacuum pressure, flow of water in a pipe, continuity equation, simple numerical problems based on liquid pressure /continuity equation		
Method of Assessment	Theory exam		
Learning Outcome 2	**Student will be able to calculate the water pressure in a given problem, at a cross section of the pipe through use of simple U-tube mercury manometer**	**08**	**10**
Contents	Need of pressure measurement for water flowing in a pipeline, pressure at any section of pipe in terms of height of water column, various methods of pressure measurement, manometer and its types, theory construction and working of simple U tube mercury manometer, procedure for calculating the pressure using U tube mercury manometer		
Method of Assessment	Theory exam		
Learning Outcome 3	**Student will be able to calculate various parameters related to flowing water in a given simple problem of pipe equipped with Venturi-meter or Orifice-meter or Pitot tube using Bernoulli's equation**	10	10
Contents	Bernoulli's theorem, its application, various types of energy heads, Bernoulli's equation, construction and working of Venturi-meter, Orifice-meter and Pitot tube, use of Bernoulli's equation for calculating various parameters related to flowing water in a given simple problem of pipe equipped with Venturi-meter, Orifice-meterand Pitot tube.		
Method of Assessment	Theory exam		

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 2/5

Branch	Automobile Engineering	Semester	Fourth

Course Code	404	Course Name	Basics of Mechanical Engineering-II

Course Outcome 2	**Student will be able to select, draw and interpret sketches and drawings related to threads, fasteners, weld joints, piping and production drawing related various symbols**	T-L Hrs	Marks
Learning Outcome 1	**Student will be able to select and draw sketches of different types of threads and fasteners in a given problem situation**	**08**	**10**
Contents	Detachable & permanent fasteners, sketches of threads (square, acme, knuckle, Internal – external threads, Left hand – right hand threads, Single & multi start threads), sketches of studs (cap screws, machine screws, set screws), sketches of bolts & nut (hexagonal, square), sketches of rivets (snap, pan, countersunk, conical), sketches of common keys		
Method of Assessment	Theory exam		
Learning Outcome 2	**Student will be able to draw and interpret the weld joints, piping and production drawing related various symbols.**	**08**	**05**
Contents	Weld symbols as per BIS-813 / ASME (primary symbols & supplementary symbols), weld nomenclature, weld dimensions, pipe-types, standards and designation methods, pipe line symbol as per passing fluid, air, gas, water, Piping fitting symbols, pipe line diagram.		
Method of Assessment	Theory exam		
Learning Outcome 3	**Student will be able to interpret and explain the meaning and relevance of various symbols and values used in the given simple production or assembly drawings**	**12**	**10**
Contents	Meaning and relevance of different sections, dimensions, symbols related to limits, fits, tolerances, machining and welding symbols, pipe related symbols, different drawing notes, tool list and gauge list.		
Method of Assessment	Theory exam		

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 3/5

Branch	Automobile Engineering	Semester	Fourth

Course Code	404	Course Name	Basics of Mechanical Engineering-II

Course Outcome 3	Student will be able to apply appropriate methods to enhance the productivity and quality in the industrial activities	T-L Hrs.	Marks
Learning Outcome 1	**Student will be able to calculate standard time in the given problem, from given time data gathered through stop watch time study or work sampling**	**07**	**10**
Contents	Time study, its importance for productivity, uses of time study, procedures of stop watch time study and work sampling, observed and standard times, performance rating, calculation of standard time from given time related data gathered from either stop watch method or work sampling, simple numerical problems based on use of formula only		
Method of Assessment	Theory exam		
Learning Outcome 2	**Student will be able to calculate number of pieces in a given lot, which fall within two given specification limits, considering the given confidence level, using the standard tables for area under normal distribution curve**	**09**	**05**
Contents	Normal distribution curve, its important characteristics, six sigma limits, confidence levels, z-value, use of z-value tables, calculation of area under normal curve, other applications in statistical quality control, simple numerical problems on calculation of area under the curve using standard tables		
Method of Assessment	Theory exam		
Learning Outcome 3	**Student will be able to calculate the values of centre line, upper control limit, and lower control limit for X bar & R charts, and construct the charts for the given data, interpret the given chart for assessing quality of the production process**	**09**	**10**
Contents	Quality control in manufacturing and assembling processes, theory of statistical process control, process control charts, their types and use, UCL, LCL, Centre-line values and their formulae for X bar & R charts, calculations of values, procedure for actual chart preparation at the shop floor, analysis of charts for improving productivity		

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 4/5

Branch	Automobile Engineering	Semester	Fourth

Course Code	404	Course Name	Basics of Mechanical Engineering-II

Method of Assessment	Theory exam

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 5/5

Branch	Automobile Engineering	Semester	Fourth

Course Code	404	Course Name	Basics of Mechanical Engineering-II

Course Outcome 4	Student will be able to explain the theory, construction, working of basic vapor compression refrigeration system	T-L Hrs.	Marks
Learning Outcome 1	**student will be able to explain various basic concepts used in refrigeration and air conditioning**	**07**	**05**
Contents	Cooling, throttling process, coefficient of performance, humidity, Dalton's law of partial pressure, psychometric processes, psychometric chart, humidity, human thermal comfort, humidification, adiabatic saturation P-h and T-s diagrams		
Method of Assessment	Paper pen test		
Learning Outcome 2	**Student will be able to calculate COP, refrigerating effect, and heat rejected in given simple numerical problem based on Reversed Carnot Cycle or Bell Coleman Cycle**	**11**	**10**
Contents	Reversed Carnot cycle, representation on P-h and T-s diagrams, its limitations, Bell- Coleman cycle, representation on P-h and T-s diagram, calculation of refrigerating effect and heat rejected and COP for both the cycles, simple numerical problems based on use of formula		
Method of Assessment	Theory exam		
Learning Outcome 3	**Student will be able to explain the construction, working of basic vapor compression refrigeration system.**	**08**	**10**
Contents	Theory, construction and working of basic vapor compression refrigeration system, construction and working of main components		
Method of Assessment	Theory exam		

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

COURSE NAME	**Basics of Mechanical Engineering-II**
CO Description	**Student will be able to calculate values of various parameters related to flow of water in a pipeline**
LO Description	**Student will be able to calculate the value of water pressure in a given problem, at any cross -sectional area of the pipe using continuity equation**

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1.	Important Properties of liquid- Viscosity, density, , specific gravity, various types of pressure – atmospheric pressure, gauge pressure, absolute pressure, vacuum pressure, flow of water in a pipe, continuity equation, simple numerical problems based on liquid pressure /continuity equation	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	02	Book:- Fluid Mechanics 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 two questions. First will be theoretical question to assess the ability of student to explain given theoretical concepts in approx. in 08 min. Second will be a 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	05	Framed questions	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	4	0	4	1	2	

COURSE NAME	**Basics of Mechanical Engineering-II**
CO Description	**Student will be able to calculate values of various parameters related to flow of water in a pipeline**
LO Description	**Student will be able to calculate the water pressure in a given problem, at a cross section of the pipe through use of simple U-tube mercury manometer**

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 pressure measurement for water flowing in a pipeline, pressure at any section of pipe in terms of height of water column, various methods of pressure measurement, manometer and its types, theory construction and working of simple U tube mercury manometer, procedure for calculating the pressure using U tube mercury manometer	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	02	Book:- Fluid Mechanics 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 two questions. First will be simple numerical question to assess the ability of student to convert water pressure in to height of water column or vice-versa in approx. 06 min. Second will be a simple numerical question on U tube manometer 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	10	Framed 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	4	0	4	1	3	

COURSE NAME	**Basics of Mechanical Engineering-II**
CO Description	**Student will be able to calculate values of various parameters related to flow of water in a pipeline**
LO Description	**Student will be able to calculate various parameters related to flowing water in a given simple problem of pipe equipped with Venturi-meter or Orifice-meter or Pitot tube using Bernoulli's equation**

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Bernoulli's theorem, its application, various types of energy heads, Bernoulli's equation, construction and working of Venturi-meter, Orifice-meter and Pitot tube, use of Bernoulli's equation for calculating various parameters related to flowing water in a given simple problem of pipe equipped with Venturi-meter, Orifice-meterand Pitot tube.	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	07	03	Book:- Fluid Mechanics 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 question, which will be a simple numerical question on Venturimeter /orifice meter / Pitot tube 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. 15 min	10	Framed 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	4	0	4	2	1	

COURSE NAME	**Basics of Mechanical Engineering-I**
CO Description	**Student will be able to select, draw and interpret sketches and drawings related to threads, fasteners, weld joints, piping and production drawing related various symbols**
LO Description	**Student will be able to select and draw sketches of different types of threads and fasteners 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	Detachable & permanent fasteners, sketches of threads (square, acme, knuckle, Internal – external threads, Left hand – right hand threads, Single & multi start threads), sketches of studs (cap screws, machine screws, set screws), sketches of bolts & nut (hexagonal, square), sketches of rivets (snap, pan, countersunk, conical), sketches of common keys	Traditional Lecture method	Teacher will explain different concepts and methods related to contents, demonstrate methods for 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	02	Book:- Machine Drawing by N. D. Bhatt 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 two questions, first will be to draw the given thread / nut / bolt/ stud in (to be solved in approx. 8 min.), second will be to sketch the given rivet or key (to be solved in approx. 7 min.)	10	Framed question	External

ADDITIONAL 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	4	0	4	2	2	

COURSE NAME	**Basics of Mechanical Engineering-I**
CO Description	**Student will be able to select, draw and interpret sketches and drawings related to threads, fasteners, weld joints, piping and production drawing related various symbols**
LO Description	**Student will be able to draw and interpret the weld joints, piping layout and pipe drawings.**

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Weld symbols as per BIS-813 / ASME (primary symbols & supplementary symbols), weld nomenclature, weld dimensions, pipe-types, standards and designation methods, pipe line symbol as per passing fluid, air, gas, water, Piping fitting symbols, pipe line diagram.	Traditional Lecture method	Teacher will explain different concepts and methods related to contents, demonstrate methods for 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	02	Book:- Machine Drawing by N. D. Bhatt 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 two questions, first will be to draw the given weld symbol, thread, second will be to sketch the given pipeline/ pipe fitting symbol, which can collectively be solved by the student in approx. 20 min	05	Framed question	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	4	0	4	2	3	

COURSE NAME	**Basics of Mechanical Engineering-II**
CO Description	**Student will be able to select, draw and interpret sketches and drawings related to threads, fasteners, weld joints, piping and production drawing related various symbols**
LO Description	**Student will be able to interpret and explain the meaning and relevance of various symbols and values used in the given simple production or assembly drawings**

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 and relevance of different sections, dimensions, symbols related to limits, fits, tolerances, machining and welding symbols, pipe related symbols, different drawing notes, tool list and gauge list.	Traditional Lecture method	Teacher will explain meaning and relevance of different sections, dimensions, symbols, drawing notes, and lists used in production and assembly drawings, students will practice to solve different problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials	08	04	Book:- Machine Drawing by N. D. Bhatt 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 two questions, first will be about meaning and relevance of limits, fits, tolerances related given symbols and values in a given drawing, second will be about meaning and relevance of the machining/welding symbols in a given drawing, which can be collectively solved by the student in approx. 20 min	10	Framed question	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	4	0	4	3	1	

COURSE NAME	**Basics of Mechanical Engineering-II**
CO Description	**Student will be able to apply appropriate methods to enhance the productivity and quality in the industrial activities**
LO Description	**Student will be able to calculate standard time in the given problem, from given time data gathered through stop watch time study or work sampling**

SCHEME OF STUDY

S. No	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Time study, its importance for productivity, uses of time study, procedures of stop watch time study and work sampling, observed and standard times, performance rating, calculation of standard time from given time related data gathered from either stop watch method or work sampling, simple numerical problems based on use of formula only	Traditional Lecture method	Teacher will explain the contents to students, demonstrate the procedures for calculating standard time, students will practice to solve different problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials	05	02	Book:- Industrial Engg. by O. P. Khanna 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 will be framed, based either on stop watch time study or on work sampling, for calculating the unknown variable using the formula and given values of known variables, which can be solved by the student in approx. 15 min.	10	Framed 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	4	0	4	3	2	

COURSE NAME	**Basics of Mechanical Engineering-II**
CO Description	**Student will be able to apply appropriate methods to enhance the productivity and quality in the industrial activities**
LO Description	**Student will be able to calculate number of pieces in a given lot, which fall within two given specification limits, considering the given confidence level, using the standard tables for area under normal distribution curve**

SCHEME OF STUDY

S. No	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Normal distribution curve, its important characteristics, six sigma limits, confidence levels, z-value, use of z-value tables, calculation of area under normal curve, other applications in statistical quality control, simple numerical problems on calculation of area under the curve using standard tables	Traditional Lecture method	Teacher will explain the contents to students, demonstrate the procedures for finding area under the curve, students will practice to solve different problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials	06	03	Book:- Industrial engg. by O. P. Khanna 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 will be framed, for finding calculating the portion of population or area under the normal distribution curve after calculating z values or using given z-value and using normal curve area tables or given normal curve area values, which can be solved by the student in approx. 15 min.	05	Framed question	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	4	0	4	3	3	

COURSE NAME	**Basics of Mechanical Engineering-II**
CO Description	**Student will be able to apply appropriate methods to enhance the productivity and quality in the industrial activities**
LO Description	**Student will be able to calculate the values of centre line, upper control limit, and lower control limit for X bar & R charts, and construct the charts for the given data, interpret the given chart for assessing quality of the production 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	Quality control in manufacturing and assembling processes, theory of statistical process control, process control charts, their types and use, UCL, LCL, Centre-line values and their formulae for X bar & R charts, calculations of values, procedure for actual chart preparation at the shop floor, analysis of charts for improving productivity	Traditional Lecture method	Teacher will explain the contents to students, demonstrate the procedures for preparation of X bar & R charts, students will practice to solve different problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials	06	03	Book:- Industrial engg. by O. P. Khanna 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 question will be framed, in which student will be asked to calculate the values of centerline, UCL, LCL for X bar or R chart and plot the chart on the graph paper, which can be solved by the student in approx. 15 min	10	Framed question	External

ADDITIONAL 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	4	0	4	4	1	

COURSE NAME	**Basics of Mechanical Engineering-II**
CO Description	**Student will be able to explain the theory, construction, working of basic vapor compression refrigeration system**
LO Description	**student will be able to explain various basic concepts used in refrigeration and air conditioning**

SCHEME OF STUDY

S. No	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Cooling, throttling process, coefficient of performance, humidity, Dalton's law of partial pressure, psychometric processes, psychometric chart, humidity, human thermal comfort, humidification, adiabatic saturation P-h and T-s diagrams	Traditional Lecture method	Teacher will explain the contents to students, students will practice to solve different problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials	05	02	Book:- Refrigeration and Air Conditioning by C. P. Arora Or Its equivalent	NIL

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1.	Paper pen test	A question will be framed to assess the ability of student to explain the given three basic concepts, which can be solved by the student in approx. 15 min	05	Framed question	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	4	0	4	4	2	

COURSE NAME	**Basics of Mechanical Engineering-II**
CO Description	**Student will be able to explain the theory, construction, working of basic vapor compression refrigeration system**
LO Description	**Student will be able to calculate COP, refrigerating effect, and heat rejected in given simple numerical problem based on Reversed Carnot Cycle or Bell Coleman Cycle**

SCHEME OF STUDY

S. No	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Reversed Carnot cycle, representation on P-h and T-s diagrams, its limitations, Bell- Coleman cycle, representation on P-h and T-s diagram, calculation of refrigerating effect and heat rejected and COP for both the cycles, simple numerical problems based on use of formula	Traditional Lecture method	Teacher will explain the contents to students, , students will practice to solve different problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials	07	04	Book:- Refrigeration and Air Conditioning by C. P. Arora 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 will be set to assess the ability of student to calculate the unknown variable while using the formulae of COP, which can be solved by the student in approx. 15 min	10	Framed 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	4	0	4	4	3	

COURSE NAME	**Basics of Mechanical Engineering-II**
CO Description	**Student will be able to explain the theory, construction, working of basic vapor compression refrigeration system**
LO Description	**Student will be able to explain the construction, working of basic vapor compression refrigeration 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	Theory, construction and working of basic vapor compression refrigeration system, construction and working of main components	Traditional Lecture method	Teacher will explain the contents to students, , students will practice to solve different problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials	05	03	Book:- Refrigeration and Air Conditioning by C. P. Arora Or Its equivalent	NIL

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1.	Theory exam	Two questions will be asked to assess the ability of student to explain theory /construction/ working of the refrigeration system/ main components, which can be solved by the student in approx. 15 min	10	Framed question	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 1/5

Branch	AUTOMOBILE ENGINEERING	Semester	Fourth

Course Code	403	Course Name	Vehicle Body Engineering

Course Outcome 1	Student will be able to explain different types of car body and design.	T-L Hrs	Marks
Learning Outcome 1	**Student will be able to explain different types /construction /components of car body with help of appropriate sketches.**	**08**	**05**
Contents	Introduction to Car body, its purpose, requirements, types, dimensional regulations, driver's visibility, car body construction, study of major components* of car body regarding location, purpose, construction, study of different types of doors and window actuating mechanisms regarding construction, merits and limitations		
Method of Assessment	Paper pen test		
Learning Outcome 2	**Student will be able to suggest various methods to improve the visibility, available space and safety for the given car.**	**07**	**05**
Contents	Visibility and space requirements in cars, various methods for improving visibility and space in cars. Safety requirements for cars. Concept, working principle and basic construction of door lock and central lock		
Method of Assessment	Paper pen test		
Learning Outcome 3	**Student will be able to identify various panels and components of car body.**	**10**	**20**
Contents	Identification of Bumper, Fender, Door panel, Centre post, Cowl Panel, Lower Door skin, Rocker Panel, Cab corner, Lower front Bedside, Rear Panel, Wheel House, Lower Rear Bedside, Header Panel, Roof Panel, Wheel tub, Tailgate, Front and Rear Quarter Panel through Construction/ location of these panels and components in the given car Body		
Method of Assessment	Laboratory test by observation		

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 2/5

Branch	AUTOMOBILE ENGINEERING	Semester	Fourth

Course Code	403	Course Name	Vehicle Body Engineering

Course Outcome 2	Student will be able to explain the concepts and importance of aerodynamics and ergonomics in car body design.	T-L Hrs	Marks
Learning Outcome 1	**Student will be able to apply principles of aerodynamics in minimizing the air resistance for the moving car.**	**07**	**05**
Contents	Aerodynamics, principles of aerodynamics, aerodynamic devices, air drag on vehicle, types of air drags and their effects, forces and moments acting on vehicle body.		
Method of Assessment	Paper-pen test		
Learning Outcome 2	**Student will be able to apply principles of ergonomics in car body interior space for maximum comfort of driver and passengers**	**08**	**05**
Contents	Ergonomics, principles of ergonomics, Automotive ergonomics, seating position, leg room, head clearance , lateral clearance, sitting comfort/ discomfort, reach and limitation of human, visual field, visual needs and visual obstruction		
Method of Assessment	Paper pen test		

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 3/5

Branch	AUTOMOBILE ENGINEERING	Semester	Fourth

Course Code	403	Course Name	Vehicle Body Engineering

Course Outcome 3	Student will be able to explain the different types of bus body and design	T-L Hrs	Marks
Learning Outcome 1	**Student will be able to explain different types / construction / components of bus body with help of appropriate sketches.**	**08**	**05**
Contents	Introduction to bus body, its purpose, requirements, types, dimensional regulations, engine location, entrance and exit, seating dimensions bus body construction, study of major components* of bus body regarding location, purpose, construction, types of metal sections used and double skin construction		
Method of Assessment	Paper pen test		
Learning Outcome 2	**Student will be able to identify various panels and components of bus body.**	**10**	**20**
Contents	Identification of various panels / components with their location, function and important features for bus body such as Door glass, door assembly, Pedal housing, Bumper, Side swing, Wind shield, Sun shade, Skirt panels, Wheel arch, Roof panel bays, Valance panel		
Method of Assessment	Laboratory test by observation		

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 4/5

Branch	AUTOMOBILE ENGINEERING	Semester	Fourth

Course Code	403	Course Name	Vehicle Body Engineering

Course Outcome 4	Student will be able to select appropriate material for the given car body component.	T-L Hrs	Marks
Learning Outcome 1	**Student will be able to explain the important properties and specific uses of metallic alloys/non-metallic materials used for car body components.**	**08**	**05**
Contents	Car body material requirements, study of steel sheet, plastics, GRP, CRP regarding their important properties and uses in vehicle body, interior materials requirements, types, applications, Glasses, their types, glass lamination, defrosting in glasses		
Method of Assessment	Paper pen test		
Learning Outcome 2	**Student will be able to select appropriate material for the given function/ working condition of a car body component / interior component**	**06**	**05**
Contents	Selection of appropriate materials for the car body components / interior components on basis of given component function and its working conditions		
Method of Assessment	Paper pen test		

RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 5/5

Branch	AUTOMOBILE ENGINEERING	Semester	Fourth

Course Code	403	Course Name	Vehicle Body Engineering

Course Outcome 5	Student will be able to treat, paint and seal the surface of given metallic / non-metallic car body component	T-L Hrs	Marks
Learning Outcome 1	**Student will be able to explain theory and general procedures for surface treatment, painting and sealing on metallic and non-metallic car body components.**	**08**	**05**
Contents	Need of car body component surface treatment / painting / sealing, theory of surface treatment / painting / sealing, different procedures for surface treatment /painting / sealing, need and function of solvents / primers / paints and sealants.		
Method of Assessment	Paper pen test		
Learning Outcome 2	**Student will be able to treat, paint and seal the surface of given metallic / non-metallic car body component**	**10**	**20**
Contents	Identification and preparation of car body component surface for treatment/painting/ sealing, applying standard procedures for surface treatment / painting / sealing, finishing, housekeeping and safety while surface treatment/painting/ sealing		
Method of Assessment	Laboratory test by observation		

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

COURSE NAME	**Vehicle body Engineering**
CO Description	**Student will be able to explain different types of car body and design.**
LO Description	**Student will be able to explain different types/construction/components of car body with help of appropriate sketches.**

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 Car body, its purpose, requirements, types, dimensional regulations, driver's visibility, car body construction, study of major components* of car body regarding location, purpose, construction, study of different types of doors and window actuating mechanisms regarding construction, merits and limitations	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	• Vehicle Body engineering – R.Tamilarasan. OR • Vehicle Body Layout and Analysis- Andrew Livesey. OR • Automobile Engg. Vol.5- Anil Chhikara. OR their equivalent	* Bumper, Fender, Door panel, Centre post, Cowl Panel, Lower Door skin, Rocker Panel, Cab corner, Lower front Bedside, Rear Panel, Wheel House, Lower Rear Bedside, Header Panel, Roof Panel, Wheel tub, Tailgate, Front and Rear Quarter Panel

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	05	Test paper, 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	4	0	3	1	2	

COURSE NAME	**Vehicle body Engineering**
CO Description	**Student will be able to explain different types of car body and design.**
LO Description	**Student will be able to suggest various methods to improve the visibility, available space and safety for the given car.**

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Visibility and space requirements in cars, various methods for improving visibility and space in cars. Safety requirements for cars. Concept, working principle and basic construction of door lock and central lock	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	02	• Vehicle Body engineering – R.Tamilarasan. OR • Vehicle Body Layout and Analysis- Andrew Livesey. OR • Automobile Engg. Vol.5- Anil Chhikara. OR their equivalent	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 university question paper	05	Test 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	4	0	3	1	3	

COURSE NAME	**Vehicle body Engineering**
CO Description	**Student will be able to explain different types of car body and design.**
LO Description	**Student will be able to identify various panels and components of car 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	Identification of Bumper, Fender, Door panel, Centre post, Cowl Panel, Lower Door skin, Rocker Panel, Cab corner, Lower front Bedside, Rear Panel, Wheel House, Lower Rear Bedside, Header Panel, Roof Panel, Wheel tub, Tailgate, Front and Rear Quarter Panel through Construction/ location of these panels and components in the given car Body	Lab demonstration method	Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher.	08	02	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 students to identify four car body components for bus and describe their location, function and important features	20	Rating scale	External

INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Marking scheme

Max. marks	Location	Function	Important features
First body component	02	02	01
Second body component	02	02	01
Third body component	02	02	01
Fourth body component	02	02	01

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

COURSE NAME	**Vehicle body Engineering**
CO Description	**Student will be able to explain the concepts and importance of aerodynamics and ergonomics in car body design.**
LO Description	**Student will be able to apply principles of aerodynamics in minimizing the air resistance for the moving car**

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Aerodynamics, principles of aerodynamics, aerodynamic devices, air drag on vehicle, types of air drags and their effects, forces and moments acting on vehicle body.	Lecture method	Teacher will organize lecture inside the class based on his/her session plan. Discuss the topics with students, provide quiz, assignment etc.	05	02	• Vehicle Body engineering –A.K Babu • Vehicle Body engineering – R.Tamilarasan. • Automobile Engg. Vol.5- Anil Chhikara.	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	05	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	4	0	3	2	2	

COURSE NAME	**Vehicle body Engineering**
CO Description	**Student will be able to apply principles of Aerodynamics and ergonomics in car body design.**
LO Description	**Student will be able to apply principles of ergonomics in car body interior space for maximum comfort of driver and passengers**

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Ergonomics, principles of ergonomics, Automotive ergonomics, seating position, leg room, head clearance , lateral clearance, sitting comfort/ discomfort, reach and limitation of human, visual field, visual needs and visual obstruction	Lecture method	Teacher will organize lecture inside the class based on his/her session plan. Discuss the topics with students, provide quiz, assignment etc.	6	2	• Vehicle Body engineering –A.K Babu • Vehicle Body engineering – R.Tamilarasan. • Automobile Engg. Vol.5- Anil Chhikara.	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	05	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	4	0	3	3	1	

COURSE NAME	**Vehicle body Engineering**
CO Description	**Student will be able to explain the different types of bus body and design**
LO Description	**Student will be able to explain different types / construction / components of bus body with help of appropriate sketches..**

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 bus body, its purpose, requirements, types, dimensional regulations, engine location, entrance and exit, seating dimensions bus body construction, study of major components* of bus body regarding location, purpose, construction, types of metal sections used and double skin construction	Lecture method	Teacher will organize lecture inside the class based on his/her session plan. Discuss the topics with students, provide quiz, assignment etc.	06	02	• Vehicle Body engineering –A.K Babu • Vehicle Body engineering – R.Tamilarasan. • Vehicle Body Layout and Analysis- Andrew Livesey. • Automobile Engg. Vol.5- Anil Chhikara.	*Door glass, door assembly, Pedal housing, Bumper, Side swing, Wind shield, Sun shade, Skirt panels, Wheel arch, Roof panel bays, Valance panel

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 university question paper	05	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	4	0	3	3	2	

COURSE NAME	**Vehicle body Engineering**
CO Description	**Student will be able to explain different types of car body and design.**
LO Description	**Student will be able to identify various panels and components of bus 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	Identification of various panels / components with their location, function and important features for bus body such as Door glass, door assembly, Pedal housing, Bumper, Side swing, Wind shield, Sun shade, Skirt panels, Wheel arch, Roof panel bays, Valance panel	Lab demonstration method	Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher.	07	03	• different components and sub-assemblies of Bus Body.	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 four bus body components and describe their location, function and important features	20	Rating scale	External

INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

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

Max. marks	Location	Function	Important features
First body component	02	02	01
Second body component	02	02	01
Third body component	02	02	01
Fourth body component	02	02	01

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

COURSE NAME	**Vehicle Body Engineering**
CO Description	**Student will be able to select appropriate material for the given car body component.**
LO Description	**Student will be able to explain the important properties and specific uses of metallic alloys / non-metallic materials used for car body components.**

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Car body material requirements, study of steel sheet, plastics, GRP, CRP regarding their important properties and uses in vehicle body, interior materials requirements, types, applications, Glasses, their types, glass lamination, defrosting in glasses	Lecture method	Teacher will organize lecture inside the class based on his/her session plan. Discuss the topics with students, provide quiz, assignment etc.	06	02	• Vehicle Body Engineering –A.K Babu • Vehicle Body Engineering – R.Tamilarasan. • Automobile Engg. Vol.5- Anil Chhikara.	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	05	Test paper Check list	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	4	0	3	4	2	

COURSE NAME	**Vehicle Body Engineering**
CO Description	**Student will be able to select appropriate material for the given car body component.**
LO Description	**Student will be able to select appropriate material for the given function/ working condition of a car body component / interior component**

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 materials for the car body components / interior components on basis of given component function and its working conditions	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.	02	04	• Vehicle Body engineering –A.K Babu • Vehicle Body engineering – R.Tamilarasan. • Automobile Engg. Vol.5- Anil Chhikara.	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 will be framed to assess the ability to select material in the given case, which could be solved by the student in approx. 08 min	05	Test paper, 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	4	0	3	5	1	

COURSE NAME	**Vehicle body Engineering**
CO Description	**Student will be able to treat, paint and seal the surface of given metallic / non-metallic car body component**
LO Description	**Student will be able to explain theory and general procedures for surface treatment, painting and sealing on metallic and non-metallic car body components.**

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 car body component surface treatment / painting / sealing, theory of surface treatment / painting / sealing, different procedures for surface treatment /painting / sealing, need and function of solvents / primers / paints and sealants.	Lecture method	Teacher will organize lecture inside the class based on his/her session plan. Discuss the topics with students, provide quiz, assignment etc.	06	02	• Vehicle Body engineering –A.K Babu • Vehicle Body engineering – R.Tamilarasan. • Vehicle Body Layout and Analysis- Andrew Livesey. • Automobile Engg. Vol.5- Anil Chhikara.	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	05	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	4	0	3	5	2	

COURSE NAME	**Vehicle body Engineering**
CO Description	**Student will be able to treat, paint and seal the surface of given metallic / non-metallic car body component**
LO Description	**Student will be able to treat, paint and seal the surface of given metallic / non-metallic car body component**

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 preparation of car body component surface for treatment/painting/ sealing, applying standard procedures for surface treatment / painting / sealing, finishing, housekeeping and safety while surface treatment/painting/ sealing	Lab demonstration method	Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher.	06	04	different components and sub-assemblies of car body components, tools and equipments for surface treatment/ painting/ sealing, raw materials/ consumables, safety devices	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 prepare given body part surface for painting / sealing, or paint/ seal the surface of given car body component	20	Different components and sub-assemblies of car body components, tools and equipments for surface treatment/ painting/ sealing, raw materials /consumables, safety devices, Rating scale	External

INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

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

1. Quality of task planning (4)

2. Extent to which standard procedure followed (4)
3. Extent to which tools used in appropriate ways (4)
4. Extent of housekeeping during completion of task (4)
5. Extent of safety precautions taken during the work (4)

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

COURSE NAME	**Professional Development- IV**
CO Description	**Student will be able to organize activities related to student chapters of professional bodies and student related academic events of the department**
LO Description	**Student will be able to organize activities related to student chapters of professional 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	Planning and organizing group activities and events, deciding sub-activities, distributing responsibilities, arranging resources sub-activities, scheduling sub-activities	Traditional lecture method + Case Study	Teacher will teach students how activities are planned and organized, will discuss examples and cases. Teacher will form small student groups, guide them to plan and organize the activities assigned to their group, teacher will supervise their implementation of the activity plans and correct their mistakes , teacher will ensure their learning through organizing the related different activities	04	06	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	Student activity/task	The teacher will ask the students to organize small group-activity events. Teacher will observe and assess the extent of quality of plan, implementation of plan and student's learning for organizing professional body activities	10	Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

1. **Suggested departmental student chapter activities:**

- **Organizing departmental chapter meetings**
- **Local community awareness programme on social issues, traffic rules, cleanliness drive, use of plastics and environmental protection etc.**
- **Poster competition on social concerns, traffic rules, cleanliness drive, use of plastics and environmental protection etc. and awarding the best prepared poster**
- **Engineering knowledge competitions**
- **Outreach workshop for local high school students**
- **Publishing institutional/departmental student chapter newsletter**
- **Establishing and managing students' cooperative book club**
- **Organizing information dissemination and application programme related to continuing and higher education opportunities and how to apply for them, for the students**
- **Organizing short training programmes on public speaking**

2. **Organizing any group activity consists of planning the activity and implementing the plan**.

3. **Process of planning any group activity consists of:-**
    a. Deciding objectives of the activity
    b. Deciding main sub-activities to achieve objectives
    c. Deciding who will be responsible for doing sub-activities
    d. Deciding what pre-requisite information /knowledge/ability is required to complete the any sub-activity
    e. Deciding what resources will be required to conduct the sub-activities
    f. Deciding the expected duration of sub-activities

g. Deciding at start and finish times of sub-activities

4. Suggested activity plan format(table) :-

S. No.	Sub-activity number	Sub-activity description	Responsible group member	Duration	Start date	Finish date	Pre-requisite Knowledge /Information required	Resource required

5. Implementing the plan consists of:-

a. Educating responsible members about how and when to perform the assigned sub-activity

b. Acquiring necessary pre-requisite knowledge/ information / ability before starting any sub-activity

c. Arranging resources for various sub activities and provide to responsible members

d. Ensuring timely start and finish of the different sub activities

e. If necessary, revising and updating the plan during its implementation

6. Learning from organizing the activities:-

After organizing the activity, student groups will answer following self questions about their experiences of organizing the activities

a. What problems we have faced during activity planning and implementation?

b. How we managed to solve them?

c. What mistakes and errors we committed in planning and implementation of these activities?

d. What we have learned from these mistakes and errors?

e. In future, what precautions we will take if we will be asked to again organize this activity?

f. What are suggestions to improve planning and implementation of this activity?

7. Each student group should be allotted an activity from the above suggested list of professional body related activities.

8. **Assessment criteria and their weights:-**

S. No.	Criteria	Marks
1.	Extent of quality in Student's group activity plan	03
2.	Extent of quality in Implementation of the activity plan	03
3.	Extent of learning occurred through performing the group activity	04

9. In course of Professional Development-IV, department may assign teaching learning of one course outcome to one teacher and may also divide students into three batches B1, B2, B3. Simultaneously three student batch will work under the three teachers for the three course outcomes and then the batches will work for next course outcomes under remaining two teachers as per following arrangement:

	T1	T2	T3
	CO1	CO2	CO3
FIRST 20 PERIODS	B1	B2	B3
SECOND 20 PERIODS	B2	B3	B1
THIRD 20 PERIODS	B3	B1	B2

10. The concerned teacher of CO1 may Divide the batch of students under him / her into small groups (4-5 students)

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

COURSE NAME	**Professional Development- IV**
CO Description	**Student will be able to organize activities related to student chapters of professional bodies and student related academic events of the department**
LO Description	**Student will be able to organize student related academic events of the department**

SCHEME OF STUDY

S. No	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Planning and organizing group activities and events, deciding sub-activities, distributing responsibilities, arranging resources sub-activities, scheduling sub-activities	Traditional lecture method + Case Study	Teacher will teach students how activities are planned and organized, will discuss examples and cases. Teacher will form small student groups, guide them to plan and organize the activities assigned to their group, teacher will supervise their implementation of the activity plans and correct their mistakes , teacher will ensure their learning through organizing the related different activities	04	06	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	Student activity/task	The teacher will ask the students to organize small group-activity events Teacher will observe and assess the extent of quality of plan, implementation of the plan and student's learning for organizing student related academic events of the department	15	Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

1. **Suggested student related academic events/ activities of the department:**

- **Organizing departmental award ceremonies for departmental outstanding students and high academic achievers**
- **Organizing departmental bulletin board preparation group activities for creating awareness about various scholarships, career prospects etc and awarding the best prepared bulletin board**
- **Organizing departmental faculty appreciation events**
- **Editing and publishing departmental newsletter and departmental magazine**
- **Updating departmental section at college web site/ web portal**
- **Organizing expert lectures of experts of local industry**
- **Organizing lectures of social, enterprising, professional achievers of nearby community**
- **Organizing expert lectures on morality, values, ethics and professional ethics**

2. **Organizing any group activity consists of planning the activity and implementing the plan**.

3. **Process of planning any group activity consists of:-**
    a. Deciding objectives of the activity
    b. Deciding main sub-activities to achieve objectives
    c. Deciding who will be responsible for doing sub-activities
    d. Deciding what pre-requisite information /knowledge/ability is required to complete the any sub-activity
    e. Deciding what resources will be required to conduct the sub-activities
    f. Deciding the expected duration of sub-activities
    g. Deciding at start and finish times of sub-activities

4. **Suggested activity plan format(table) :-**

S. No.	Sub-activity number	Sub-activity description	Responsible group member	Duration	Start date	Finish date	Pre-requisite Knowledge /Information required	Resource required

5. **Implementing the plan consists of:-**
    a. Educating responsible members about how and when to perform the assigned sub-activity
    b. Acquiring necessary pre-requisite knowledge/ information / ability before starting any sub-activity
    c. Arranging resources for various sub activities and provide to responsible members
    d. Ensuring timely start and finish of the different sub activities
    e. If necessary, revising and updating the plan during its implementation

6. **Learning from organizing the activities:-**

    After organizing the activity, student groups will answer following self questions about their experiences of organizing the activities

    a. **What problems we have faced during activity planning and implementation?**
    b. **How we managed to solve them?**
    c. **What mistakes and errors we committed in planning and implementation of these activities?**
    d. **What we have learned from these mistakes and errors?**
    e. **In future, what precautions we will take if we will be asked to again organize this activity?**
    f. **What are suggestions to improve planning and implementation of this activity?**

7. Each student group should be allotted an activity from the above suggested list of professional body related activities.

8. Assessment criteria and their weights:-

S. No.	Criteria	Marks
1.	Extent of quality in Student's group activity plan	03
2.	Extent of quality in Implementation of the activity plan	03
3.	Extent of learning occurred through performing the group activity	04

9. In course of Professional Development-IV, department may assign teaching learning of one course outcome to one teacher and may also divide students into three batches B1, B2, B3. Simultaneously three student batch will work under the three teachers for the three course outcomes and then the batches will work for next course outcomes under remaining two teachers as per following arrangement:

	T1	T2	T3
	CO1	CO2	CO3
FIRST 20 PERIODS	B1	B2	B3
SECOND 20 PERIODS	B2	B3	B1
THIRD 20 PERIODS	B3	B1	B2

10. The concerned teacher of CO1 may Divide the batch of students under him / her into small groups (4-5 students)

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

COURSE NAME	**Professional Development-IV**
CO Description	**Student will be able to demonstrate self-learning through joining available free online short training programmes preferably of NPTEL / MOOCs / Podcast and different online webinars related to his /her professional development**
LO Description	**Student will be able to prepare a report on his/her self learn from attending an available free online training programme**

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 training programmes, online short training programmes for students, various sources, programme selection and joining, preparation of report about self-learning from attending the online training programme	Traditional lecture method + Case Study	Teacher will guide students regarding how to search, select and how to join the available free online short training programmes available for students. Teacher will also teach and guide students regarding how to prepare report about self-learning from the attended training programmes.	06	04	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 of Student assignment	The teacher will assess the extent of student's self-learning, through examining the report prepared and submitted by the student regarding the attended online training programme	15	Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

1. The online students' training programme may be of duration 3 to 5 days or equivalent duration in hours
2. Each student should join at-least one such online programme

3. If few students are unable to join online training programmes, then for them department / institution should organize a short training programme for them

4. Suggested format for report:-

1. Title
2. General information:-
    1. Name
    2. Roll number
    3. Class /semester
    4. Place and date
3. Information regarding attended online training programme:-
    1. Name
    2. Duration, start and finish dates
    3. Organizing agency
    4. Internet link or plateform
4. My experience and learning about searching, joining and attending the online training programmes:-
    1. Major problems faced by me:-
    2. How I solved those problems:-
    3. Significant incidences:-
    4. What precautions I would take if I join similar programme in future:-
    5. What suggestions I would like to give to junior students regarding searching, joining and attending online training programmes:-
5. My learning on topic of online training:-
6. Signature

5. **Assessment criteria and their weights:-**

S. No.	Criteria	Max. Marks
1	Extent of **student's self learning regarding searching, joining and attending any online training programme** (based on report)	**4**
2	Extent of student's **self learning on the topic of the online training programme** (based on report)	**4**
3	Quality of student's **report** prepared on his/her self-Learning from attending the online training programme	**2**

6. In course of Professional Development-IV, department may assign teaching learning of each of three course outcomes to each of three teachers and may also divide students into three batches B1, B2, B3. Simultaneously three student batch will work under all the three teachers for all the three course outcomes and then the batches will work for next course outcomes under remaining two teachers as per following arrangement:

	T1	T2	T3
	CO1	CO2	CO3
FIRST 20 PERIODS	B1	B2	B3
SECOND 20 PERIODS	B2	B3	B1
THIRD 20 PERIODS	B3	B2	B1

7. The concerned teacher of CO1 may Divide the batch of students under him / her into small groups (4-5 students)

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

COURSE NAME	**Professional Development-IV**
CO Description	**Student will be able to demonstrate self-learning through joining available free online short training programmes preferably of NPTEL / MOOCs / Podcast and different online webinars related to his /her professional development**
LO Description	**Student will be able to present his/her self-learning from attending the available online training programme through Power-Point Presentation**

SCHEME OF STUDY

S. No	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	PPP preparation and presentation skills	Traditional lecture method + Case Study	Teacher will teach skills for PPP preparation and presentation skills to the students through examples and cases, teacher will provide feedback and suggestions on each student's PPP, teacher will guide and correct students during their presentations, teacher will solve their problems	06	04	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 of Student presentation	The teacher will arrange a departmental seminar in which students will present their PPP on their self-learning from attending online training programme and teacher will assess the presentation skills of individual students.	10	Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

1. **Assessment criteria and their weights:-**

S. No.	Criteria	Max. Marks
1	Extent of **self learning** as reflected from the **PPP-contents**	**3**

2	Extent of **self-learning** as reflected from the student's **presentation** and related discussion	**3**
3	Overall quality of the PPP	**2**
5	Extent of appropriateness of presenter's body postures, face expressions and quality of speaking	**2**

2. In course of Professional Development-IV, department may assign teaching learning of each of three course outcomes to each of three teachers and may also divide students into three batches B1, B2, B3. Simultaneously three student batch will work under all the three teachers for all the three course outcomes and then the batches will work for next course outcomes under remaining two teachers as per following arrangement:

	T1	T2	T3
	CO1	CO2	CO3
FIRST 20 PERIODS	B1	B2	B3
SECOND 20 PERIODS	B2	B3	B1
THIRD 20 PERIODS	B3	B2	B1

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

COURSE NAME	**Professional Development-IV**
CO Description	**Student will be able to present his/ her knowledge about given quality related concepts prevailing in industry /professions**
LO Description	**The student will be able to demonstrate his / her knowledge about ensuring quality in professional services offered to clients**

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 service, need and importance of quality in professional service, various factors affecting quality of professional service, ensuring quality in professional service	Traditional lecture method + Case Study	Teacher will teach students regarding the content through explaining cases and examples, Teacher will also provide assignment of case study with few end questions, to students and provide feedback on their submitted assignments to correct and improve their learning	06	04	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 of Student assignment	The teacher will provide a case (with four descriptive answer type questions at the end) on issues of quality in offered professional service. After studying the case, students will write answers for the five descriptive answer type questions.	10	Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

1. **Professional services**: - These are the services offered by the professional to his/her client.

Examples of professional services include:

- **Legal services**
- **Accounting and bookkeeping**
- **Marketing consultancy**
- **Architecture**
- **IT services, and more.**

2. **Factors affecting the quality of professional services:-**

    1. **Timely and accurate assessment** of the client's need
    2. **Educating the clients** regarding merits and limitations of the different services being offered
    3. **Offering prompt services** to clients
    4. **Offering services in accordance with standards formed** and communicated to the clients
    5. **Timely and constructively handling client's doubts**, quarries and complaints
    6. **Getting client's feedback or conducting clients' satisfaction surveys** about the professional services provided and improving the services
    7. **Keeping Honesty and loyalty** with the client

8. **Creating trustworthiness** with the client
9. **Ensuring transparency in providing services through proper documentation** and sharing documents of services provided with the client
10. **Getting accreditation certificate, for the professional services being offered to the clients, of the related approved quality assessing agencies**

3. Suggested list of case-end questions:-

1. How many professional service related quality issues involved in this case?
2. Describe all the professional service related quality issues?
3. How these issues can be resolved?
4. In this case, according to you what should be the professional-client service system to ensure quality in professional services?

5. Assessment criteria and their weights:-

S. No.	Criteria	Max. Marks
1	Appropriateness of student's answer to first question	**02**
2	Appropriateness of student's answer to second question	**02**
3	Appropriateness of student's answer to third question	**03**
4	Appropriateness of student's answer to fourth question	**03**

6. In course of Professional Development-IV, department may assign teaching learning of each of three course outcomes to each of three teachers and may also divide students into three batches B1, B2, B3. Simultaneously three student batch will work under all the three teachers for all the three course outcomes and then the batches will work for next course outcomes under remaining two teachers as per following arrangement:

	T1	T2	T3
	CO1	CO2	CO3
FIRST 20 PERIODS	B1	B2	B3
SECOND 20 PERIODS	B2	B3	B1
THIRD 20 PERIODS	B3	B2	B1

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

COURSE NAME	**Professional Development- IV**
CO Description	**Student will be able to present his/ her knowledge about given quality related concepts prevailing in industry /professions**
LO Description	**The student will be able to present his/her knowledge about given practices or cultures like TQM / ISO9000 / Quality circle / Quality Control / Quality Audit / Six Sigma / Kaizen etc through a PowerPoint presentation**

SCHEME OF STUDY

S. No	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Industrial practices or cultures like TQM / ISO9000 / Quality circle / quality control / quality audit / Six Sigma, kaizen etc, PP presentation skills	Traditional lecture method + Case Study	Teacher will teach concepts of various industrial practices, teacher will develop skills for PP preparation and presentation skills in the students, teacher will observe and improve student PP presentation, teacher will guide and correct students during their presentation, teacher will solve their problems and provide feedback	06	04	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 of Student presentation	The teacher will arrange a departmental seminar in which students will present their PPP on their knowledge about industrial practices teacher will assess the knowledge as well as PowerPoint Presentation of individual students.	15	Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

1. **Assessment criteria and their weights:-**

S. No.	Criteria	Max. Marks
1	Extent of understanding formed about quality practices/culture **as reflected from PPP contents**	**6**
2	Extent of understanding formed about quality practices /culture **as reflected from student's presentation**	**4**
3	Extent of relevance, appropriateness of the PPP content	**3**
4	Extent of visual effectiveness in PPP	**2**

2. In course of Professional Development-IV, department may assign teaching learning of each of three course outcomes to each of three teachers and may also divide students into three batches B1, B2, B3. Simultaneously three student batch will work under all the three teachers for all the three course outcomes and then the batches will work for next course outcomes under remaining two teachers as per following arrangement:

	T1	T2	T3
	CO1	CO2	CO3
FIRST 20 PERIODS	B1	B2	B3
SECOND 20 PERIODS	B2	B3	B1
THIRD 20 PERIODS	B3	B2	B1

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

Branch	ALL BRACHES OF IV SEMESTER	Semester	IV

Course Code	405	Course Name	PROFESSIONAL DEVELOPMENT –IV

Course Outcome 1	Student will be able to organize activities related to student chapters of professional bodies and student related academic events of the department	Teach Hrs	Marks
Learning Outcome 1	Student will be able to organize activities related to student chapters of professional bodies	10	10
Contents	Planning and organizing group activities and events, deciding subactivities, distributing responsibilities, arranging resources sub-activities, scheduling subactivities		
Method of Assessment	Internal Assessment of Student presentation		
Learning Outcome 2	Student will be able to organize student related academic events of the department	10	15
Contents	Planning and organizing group activities and events, deciding subactivities, distributing responsibilities, arranging resources sub-activities, scheduling subactivities		
Method of Assessment	Internal Assessment of Student presentation		

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

Branch	ALL BRANCHES	Semester	IV
Course Code	405	Course Name	PD –IV

Course Outcome 2	Student will be able to demonstrate self-learning through joining available free online short training programmes preferably of NPTEL / MOOCs / Podcast and different online webinars related to his /her professional development	Teach Hrs	Marks
Learning Outcome 1	Student will be able to prepare a report on his/her self learn from attending an available free online training programme	10	15
Contents	Need of training programmes,online short training programmes for students, various sources, programme selection and joining, preparation of report about selflearning from attending the online training programme		
Method of Assessment	Internal Assessment of Student presentation		
Learning Outcome 2	Student will be able to present his/her self-learning from attending the available online training programme through Power-Point Presentation	10	10
Contents	PPP preparationand presentation skills		
Method of Assessment	Internal Assessment of Student presentation		

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

Branch	ALL BRANCHES	Semester	IV

Course Code	405	Course Name	Professional development –iv

Course Outcome 3	Student will be able to present his/ her knowledge about given quality related concepts prevailing in industry /professions	Teach Hrs	Marks
Learning Outcome 1	The student will be able to demonstrate his / her knowledge about ensuring quality in professional services offered to clients	10	10
Contents	Professional service, need and importance of quality in professional service, various factors affecting quality of professional service, ensuring quality in professional service		
Method of Assessment	Internal Assessment of Student assignment		
Learning Outcome 2	The student will be able to present his/her knowledge about given practices or cultures like TQM / ISO9000 / Quality circle / Quality Control / Quality Audit / Six Sigma / Kaizen etc through a PowerPoint presentation	10	15
Contents	Industrial practices or cultures like TQM / ISO9000 / Quality circle / quality control / quality audit / Six Sigma, kaizen etc, PP presentation skills		
Method of Assessment	Internal Assessment of Student presentation		