RGPV	(DIPLC BHO	OMA W PAL	'ING)	OBE CURI THE	3	- NO. 1/5						
Branch			AUTO	MOBILE ENGINEE	RING	Semester		Sixt	า			
Course	Code	60	1	Course Name	Auto Mainte	nance Servi	ice	& Repai	rs			
Course	e Outco	ome 1	Student will be able to maintain /repair the given car engineT-L HrsMark									
Learnin	ng Outc	ome 1	Student will be able to practice checkup/ daily/ running maintenance the given car63									
C	ontent	S	maint maint check	tenance sc tenance, daily	ce of vehicle period hedules, periodic inspection, check-u battery condition, tires	checkup, p and top	c up	laily/ -oil lev	running el, belt			
Method	of Asse	ssment	Labor	atory assignme	nt							
Learnin	ng Outc	ome 2	Student will be able to trouble-diagnosis the given problematic car engine710									
			p		ne							
C	ontent		 Gene Com Intro diagr 	eral Procedure o mon engine pro duction to engi	f diagnosis cause of blems and their prob ne On Board Diagno n faults, Fuel system	oable causes ostic (OBD),	Mi	sfire de	tection,			
C		S	 Gene Com Intro diagr SI an 	eral Procedure o mon engine pro duction to engi nosis for ignitior	f diagnosis cause of blems and their prob ne On Board Diagno	oable causes ostic (OBD),	Mi	sfire de	tection,			
	of Asse	s	 Gene Com Intro diagr SI an Labor Stude 	eral Procedure o mon engine pro duction to engi nosis for ignitior d CI engines. ratory exam	f diagnosis cause of blems and their prob ne On Board Diagno n faults, Fuel system e to plan repair fo	bable causes ostic (OBD), and Injection	Mi on s	sfire de	tection,			
Method Learnin	of Asse	s ssment ome 3	 Gene Gene Comi Intro diagr SI an Labor Stude probl Nee smi util rep Pre 	eral Procedure o mon engine pro duction to engi nosis for ignitior d CI engines. ratory exam ent will be able em in the given ed for planning all tasks; assess lities, spare par pair plan	f diagnosis cause of blems and their prob ne On Board Diagno faults, Fuel system e to plan repair fo car engine the repairs, breaki ment of tools, equip rts required to con	oable causes ostic (OBD), and Injection or the given ng the reported t	Mi on s air ices n ta	sfire de system f 7 procedu s, consu ask, forr	tection, faults in 5 ure into mables, mat for			
Method Learnin	of Asseng Outc	s ssment ome 3	 Gene Gene Comi Intro diagr SI an Labor Stude probl Nev smi util rep Pre bre 	eral Procedure o mon engine pro duction to engi nosis for ignition d CI engines. ratory exam ent will be able em in the given ed for planning all tasks; assess lities, spare par paration of re	f diagnosis cause of blems and their prob ne On Board Diagno faults, Fuel system e to plan repair fo car engine the repairs, breaki ment of tools, equip rts required to con spair plans for foll small tasks	oable causes ostic (OBD), and Injection or the given ng the reported t	Mi on s air ices n ta	sfire de system f 7 procedu s, consu ask, forr	tection, faults in 5 ure into mables, mat for			
Method Learnin Cu	of Asse ng Outc ontent: of Asse	s ssment ome 3 s ssment	 Gene Gene Comi Intro diagr SI an Labor Stude probl Nee smi util rep Pre bre Labor Stude 	eral Procedure o mon engine pro duction to engi nosis for ignition d CI engines. ratory exam ent will be able em in the given ed for planning all tasks; assess lities, spare par paration of re eaking them into ratory assignment ent will be able	f diagnosis cause of blems and their prob ne On Board Diagno faults, Fuel system e to plan repair fo car engine the repairs, breaki ment of tools, equip rts required to con spair plans for foll small tasks	able causes ostic (OBD), and Injection or the given ong the reponents, dev nplete each owing repanents	Mi on s air ices n ta air	sfire de system f 7 procedu s, consu ask, forr	tection, faults in 5 ure into mables, mat for			
Method Learnin Cu Method Learnin	of Asse ng Outc ontent: of Asse	s ssment ome 3 ssment ome 4	 Gene Gene Comi Intro diagr SI an Labor Stude probl Nee sm. util rep Pre bre Labor Stude repain Car e 	eral Procedure o mon engine pro oduction to engi nosis for ignition d CI engines. Tatory exam ent will be able em in the given ed for planning all tasks; assess lities, spare par oair plan eparation of re eaking them into ratory assignment ent will be able r / maintenance engine related	f diagnosis cause of blems and their prob ne On Board Diagno faults, Fuel system e to plan repair fo car engine the repairs, breaki ment of tools, equip rts required to con epair plans for foll small tasks nt e to perform given	able causes ostic (OBD), and Injection or the given ong the reponents, dev nplete each owing repan owing repan ivity	Mi on s air ices n ta air	sfire de system f 7 procedu s, consu ask, forn activitie 8	tection, faults in 5 ure into mables, mat for es after 5			

RGPV (DIPLO BHO	OMA W IPAL	ING)	OBE CURF THE	.3 Sheet No. 2/5				
Branch			AUTO	MOBILE ENGINEE	RING	Semester		Sixt	h
Course (Code	60	1	Course Name	Auto Mainte	nance Servi	ce & R	epai	rs
Course	Outco	ome 2		aintain / repa axle / Drive trai	ir the given transı n and Axle	mission and		-L rs	Marks
Learnin	g Outo	come 1		ematic car tran	e trouble-diagnosis smission and trans	•		5	4
Co	ontent	S		ox, automatic tr	of Common proble ransmission, transax		•	•	
Method	of Asse	essment	Labor	atory assignmer	nt				
Learnin	g Outo	come 2	probl		e to plan repair fo car transmission and c.	-		6	10
Cc	ontent	S	synch	•	ir plan for followir x, automatic transi	•			-
Method	of Asse	essment	Labor	atory exam					
Learnin	g Outo	come 3	trans	axle / Drive t	to perform car trans train and Axle re tenance activity.			6	5
Co	ontent	s	comn		transaxle / Drive tr intenance related				-

RGPV	(DIPLO BHO	OMA WIN PAL	NG)		RICULUM FOR COURSE	FORMAT-	-3 Sheet No. 3/5			
Branch		A	AUTON	OBILE ENGINEE	RING	Semester		Sixt	:h	
Course	Code	601		Course Name	Auto Mainte	enance Servi	ce a	& Repa	irs	
Course	e Outco	ome 3		nt will be able system	to maintain / rep	air given ca	r	T-L Hrs	Marks	
Learnin	ng Outo	come 1		nt will be able matic car brak	to maintain / repa e system	air the give	า	6	4	
C	ontent	ς Ι		-	following common p s which are listed be		car	disc , d	rum and	
Method	of Asse	essment [Labora	atory assignmer	nt					
Learnin	ng Outo	come 2			e to plan repair fo car brake system	or the give	n	5	10	
C	ontent	S	•	ration of repain and parking bra	r plans for followir ke systems	ng repairs re	elat	ed to	car disc,	
Method	of Asse	essment [Labora	atory exam						

RGPV (OMA W PAL	ING)	OBE CURF THE	3 Sheet No. 4/5						
Branch			AUTO	MOBILE ENGINEE	RING	Semester	Sixt	h			
Course	Code	60 1	Course Name Auto Maintenance Service & Repairs								
Course	Outco	ome 4	suspe		to maintain / repa eering system / b	•	T-L Hrs	Marks			
Learnin	g Outo	come 1	given		to diagnose the tro d steering system /		9	10			
Co	ontent	S		0	common problem		•	system,			
Method	of Asse	essment	Labor	atory exam							
Learnin	g Outo	come 2	probl		e to plan repair fo ven suspension a component	-	10	10			
Co	ontent	:S	•	•	plan for following body or its compon	•	ed to sus	spension			
Method	of Asse	essment	Labor	atory exam							
Learnin	g Outo	come 3	steeri	ing system, b	to perform given ody or its compon tenance related act	ent related	11	5			
Co	ontent	:S	follov	•	ering system, body air/ maintenance re		•				

RGPV	(DIPLC BHO	OMA WIN PAL		RICULUM FOR COURSE	FORMAT-	3 She	et 5/5					
Branch		A		ERING	Semester	S	ixth					
Course	Code	601	Course Name	e & Repairs								
Course	e Outco	me 5	Student will be able to maintain / repair given carT-LMarkselectrical / electronic systemHrsHrs									
Learnin	g Outc	ome 1 👘		e to diagnose the tro ar electrical / electro		5	4					
C	ontents	s s	•	Common problems i stem, lighting syster ow*		• ·						
Method	of Asse	ssment L	_aboratory assignme	nt								
Learnin	ig Outc	ome 2 🛛 p	Student will be able to plan repair for the given problem in the given car electrical / electronic710system.									
C	ontents	s s	• •	r plan for following re em, charging system,	•		•					
Method	of Asse	ssment L	aboratory exam									
Learnin	ig Outc	ome 3 e	Student will be able electronic system maintenance activity	•	r electrical / repair /	7	5					
C	ontents		Testing and repair starting system, igr	/maintenance relatention system, chargen	•							
C			system and electroni		, , ,		-					

						Bran	ch Co	ode	c	ourse C	ode	CO Code	LO Code	
KG		oma wing) Bho	Dal SCHEIVIE F	OR LEARNING O	UTCOME	Α	0	3	6	0	1	1	1	Format No. 4
cou	RSE NAME	Auto Maintenance	Service & Repairs											
	Description	Student will be able	to maintain /repair	the given car engine										
lo d	escription	Student will be able	to practice checkup	/ daily/ running mainte	enance of th	e giver	n ca	ar						
	1	·		SCHEME OF STUE	Y									
S. No.	Lea	rning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pı /Tu	ac t H	-		LRs	Rec	luired	l	Remarks
1	Need and importance of vehic periodic maintenance and service, maintenance schedules, periodic checkup, daily/ running maintenance		Lab demonstration + Guided student practice	Teacher will explain a demonstrate the conf / activities to studen student will practice activities under guida of teacher, teacher identify their weaknes and will provide necessary remedial a tutorials	ent ts, the nce will sses	()3			mech W.H. Angli or its Relat	nanio Crou n equ ed E uals, ed t ced t	ivaler ivaler ngine Chart ool, and	d	Teacher will provide online available learning material like videos, diagrams, animations, photographs etc.
				SCHEME OF ASSESS	ЛЕПТ									External /
5. No	No. Method of Assessment		Description of	f Assessment	Maximum	Marks		Resources Require				d	External / Internal	
1	Labora	atory assignment	itudent will be asked periodic checkup rela activities in front of te	•	03				R	ating	sca	e		Internal

INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

List of periodic maintenance / daily checkup activity to be learned:-

- 1. Checking and maintaining engine oil and coolant levels
- 2. Checking battery condition
- 3. Checking engine cooling system /air conditioning system
- 4. Checking of car brakes
- 5. Checking of engine belt condition + air filter
- 6. Checking tires

Assessment Criteria: - 1. Correctness of first activity (01 marks)

2. Correctness of second activity (01 marks)

3. Correctness of third activity (01 marks)

						Brar	ich Coo	de	Cou	rse Code	CO Code	LO Code	
RG		oma Wing) Bho	pal SCHEIVIE FO	OR LEARNING O	UICOME	Α	0	3	6	0 1		2	Format No.
cou	RSE NAME	Auto Maintenance	Service & Repairs										
	Description	Student will be able	e to maintain /repair t	he given car engine									
lo d	escription	Student will be able	e to trouble-diagnosis	the given problematic	car engine								
	1			SCHEME OF STU	DY								
S. No.	Lea	Teaching – Description of T-L Teach Pracharming Content Learning Method Process Hrs /Tut							L	Rs Red	quired		Remarks
1	 General Procedure of diagnosis cause of a problem Common engine problems and their probable causes and solutions. Introduction to engine On Board Diagnostic (OBD), Misfire detection, diagnosis for ignition faults, Fuel system and Injection system faults in SI and CI engines. 		Lab demonstration rd + Guided student n practice	Teacher will explain and demonstrate the content / activities to students, student wi practice the activities under guidance of teacher, teacher will identify their weaknesses and will provide necessary remedial and tutoria	o II s 04 I	03		n V o • R N • R	necha V.H.C Adva Fault Dent celate Aanu	anics k rouse equiva nced J Diagr on 20 ed Eng als, Ch	and A lent Autom nosis b 11 ine arts	nglin otive / Tom	Teacher will provide online available learning material like videos, diagrams, animations, photographs etc.
				SCHEME OF ASSESS	MENT								
S. N	o. Metho	d of Assessment	Description of	Assessment	Maximum N	Aarks	Re	esou	irces	Requi	red	Exte	ernal / Internal
1	Lab	oratory exam	Student will be asked to problems in two given of external examiner		10			Rating scale					External

INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

List of common engine problems for which diagnosis of cause is to be learned:-

- 1. Coolant level is frequently reducing
- 2. engine is not starting
- 3. engine is overheating
- 4. excessive emissions from car
- 5. car is consuming too much oil
- 6. car fuel average is gradually reducing
- 7. Engine occasionally misfires

Assessment criteria (for each case):-

- 1. Correctness of adopted procedure (3marks)
- 2. Correctness of identified cause (2 marks)

				FO				Branch	Code	6	Course (ode	CO Code	LO Code	
RGP		oma Wing) Bho	pal SCHEIVIE	FO	R LEARNING O	UICOI	VIE	A 0	3	6	0	1	1	3	Format No. 4
COURS	SE NAME	Auto Maintenance	Service & Repairs												
CO De	scription	Student will be abl	e to maintain /repa	ir th	ne given car engine										
LO Des	scription	Student will be able	to plan repair for t	he g	iven problem in the	given car	engi	ne							
					SCHEME OF STUE	ΟY		1							
S. No.	Le	arning Content	Teaching – Learning Meth		Description of T- Process		each Irs.	Pra /Tut			LR	s Re	quire	d	Remarks
1	 Need for planning the rep breaking the repair proceed into small tasks; assessment tools, equipments, deviced consumables, utilities, sparts required to complet each task, format for repair plan Preparation of repair plan following repair activities breaking them into small to 		e Lab of Lab demonstratio + Guided stude practice er		Teacher will explain demonstrate the content / activities students, student v practice to prepare under guidance of teacher, teacher v identify their weaknesses and w provide necessar remedial and tutor	e s to will plan of (vill y	04	0	3	 Book:- Automotive mechanics by W.H.Crouse and Anglin Or its equivalent Related Engine Manuals, Charts Related tool, devices and equipments 				nd nt	Teacher will provide onlin available learning material like videos, diagrams, animations, photographs etc.
					SCHEME OF ASSESS	MENT									
S. No.	Metho	d of Assessment	Description	n of	Assessment	Maxim	um N	/larks	Re	sou	rces l	Requ	ired	Ex	ternal / Interna
1	Labora	atory assignment	Student will be aske plan for the two giv submit them to tea	en r	epair works and		05			R	Rating	g sca	le		Internal

INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

List of repair works for which student will learn to prepare the repair plans:-

- 1. Removing and installing coolant pump and radiator for the given engine
- 2. removing and installing the mechanical fuel pump for the given engine
- 3. removing the crankshaft from the given engine
- 4. installing pistons con-rods in the given engine
- 5. Changing cylinder head gasket of the given engine

FORMAT FOR REPAIR PLAN (Lab assignment)

		Date	LO No.
		Name of student	
1	General Information	Roll No.	
		Name of car sub-assembly	
		Name of component(s)	
		A. Description of detailed repair procedure	
		B. Sketch related to repair	
	Description of repair	A. Measuring tools required	
2	procedure	B. Repair tools required	
	and resources	C. Machines /devices / equipments required	
		D. Consumables required	
		E. Spare parts required	
		F. Approximate time required for repairs	
4	Additional in	formation (if required)	
5.	Signature of	student	

Asse	ssment criteria:-	
1	. Extent of appropriateness of required tools, machines, devices	(03 marks)
2	. Extent of appropriateness of required consumables ,spare parts a	nd time (02 marks)

ים כח	//		7 h a m a l				Branch	Code	Course	Code	CO Code	LO Code	
RGP		oma wing) E	snopai	SCHEIVIE	FOR LEARNING OUTC	ONE	A 0	3	6 C	1	1	4	Format No. 4
COURS	E NAME	Auto Maintena	ance Servio	ce & Repairs									
CO Des	cription	Student will be	e able to m	naintain /rep	air the given car engine								
.O Des	cription	Student will be	e able to p	erform given	car engine repair / maintenai	nce relat	ed spec	ific a	ctivity				
		1			SCHEME OF STUDY								
S. No	Learnin	g Content	-	-Learning thod	Description of T-L Process	Teach Hrs.	Prac /Tut H	-	LR	s Req	uired		Remarks
1	followi repair/ r relate activitie	gine related ng common maintenance ed specific es which are ed below	Guided	onstration + student ctice	Teacher will explain and demonstrate the content / activities to students, student will practice the activities under guidance of teacher, teacher will identify their weaknesses and will provide necessary remedial and tutorials	03	05		W. Or • Re Ma • R d	echa H.Cro Ang ts eq lated nuals elate evice	nics by ouse ar	/ nd nt e ts	Teacher will provide online available learning material like videos, diagrams, animations, photographs etc.
I					SCHEME OF ASSESSMEN	T	1						
S. No.	Method	of Assessment		Des	cription of Assessment		-	iximu Aarks		lesou Requ	irces ired	Ext	ternal / Interna
1	Laborat	ory assignment			to perform given engine repai in front of the teacher	r related		05	R	ating	scale		Internal
				INSTR	UCTIONS FOR THE HOD/ FACU	LTY (IF A	NY)		·				
	List of repa	air related activiti	ies to be lea	arned by the s	tudent:-								
	1. removi	ing /installing cod	olant pump	/ radiator									

- 2. removing and testing the thermostat valve
- 3. removing and replacing worn con rod bearing sleeves
- 4. installing piston con-rod assemblies in the given engine
- 5. Adjusting the valve timing and drive belt tension
- 6. Changing cylinder head gasket

Assessment criteria* :-

- 1. Extent to which SOP has been followed (03 marks)
- 2. Extent to which student used appropriate tools (01marks)
- 3. Extent to which student used tools appropriately (01 marks)

*Note: - Give marks out of 5 for each activity and finally scale down the obtained sum of two activities to half and rounded to higher side whole number (if necessary).

								Bran	ch Code	Cou	rse Code	CO Code	LO Code	
KGI	PV (Diploi	ma vvi	ing) bho	par 3	SCHEME FOR LEARNIN			Α	0 3	6	0 1	2	1	Format No. 4
COU	IRSE NAME	Auto N	laintenance	e Service	e & Repairs									
	escription	Studen	t will be ab	le to ma	aintain / repair the given trans	mission	and transa	xle / D	rive tra	ain an	d Axle			
.0 De	escription	Studen	it will be ab	le to tro	ouble-diagnosis the given prob	lematic	car transm	ission	and tra	nsaxle	e / Driv	ve and	d Axle	
		1			SCHEME OI	F STUDY	1							
S. No	Learning C	ontent	Teachi Learning N	-	Description of T-L Process	Teach Hrs.	Pract /Tut Hrs		LF	s Req	uired			Remarks
1	lo Learning Content Learni Trouble diagnosis of Common problems in clutch, synchromesh gearbox, automatic transmission,			ration tudent ice	Teacher will explain and demonstrate the content / activities to students, student will practice the activities under guidance of teacher, teacher will identify their weaknesses and will provide necessary remedial and tutorials	3	2	Veh Mai Alla Veh gara Jiga Jaya • Rela	ractical icle En ntenar n Bonn icle ma age pra rA.Dos eshP.M ted too pments	gineer ce 3rd ick inten ctice I niDhru aniar. I, devi	ing an d Editic ance a by uU.Pan 2014.	d on by nd chal,		Teacher will provide online available earning material like videos, diagrams, animations, photographs etc.
					SCHEME OF AS	SESSM	ENT							
S. N	o. Metho	od of Ass	essment		Description of Assessment		Maximum Marks Resources Required						Ext	ernal / Interna
1	1 Laboratory assignment				dent will be asked to find the cause of blems in three given car transmission I transaxle / Drive and Axle cases in nt of teacher				04 Rating scale Inter					

List of common problems of car transmission and transaxle / drive and Axle for which diagnosis of cause is to be learned:-

- 1. Clutch slips while engaged
- 2. Clutch chatters or grabs while engaging
- 3. Clutch paddle pulsates
- 4. Clutch pedal stiff
- 5. Hard shifting in to gear
- 6. Gears clash while shifting

Assessment criteria (for each case)*:-

- 1. Correctness of adopted procedure (2 marks)
- 2. Correctness of identified cause (2 marks)

*Note: - Give marks out of 4 for each trouble diagnosis and finally scale down the obtained sum of three activities to one third and rounded to higher side

whole number (if necessary).

			Phanal (C C L I C			۸ ۲	Branch C	Code	Cou	rse Code	CO Code	LO Code		
KGr	יע (טוסוט)	oma Wing)	Bhopai 5	CHE	EME FOR LEARNING OU		ΊĿ	A 0	3	6	0 1	2	2	Format No. Z	
COU	RSE NAME	Auto Mainten	ance Service (& Rep	airs				-				-		
CO D	Description	Student will b	e able to mair	ntain /	/ repair the given transmission a	and tran	saxl	e / drive	e trair	n and	axle				
lo d	escription	Student will b	e able to plan	ı repai	ir for the given problem in the gi	;iven car	trar	nsmissio	on and	d tran	saxle /	′ drive 1	rain a	nd axle.	
					SCHEME OF STUD	γ									
S. No	Learnin	ing Content	Teaching Learning Me	-	Description of T-L Process	Teach Hrs.		Pract Tut Hrs.		LRs	Requir	·ed		Remarks	
1	plan for fol related synchrom automatic transaxle	ition of repair ollowing repairs ed to clutch, mesh gearbox, c transmission, le , drive and ferential	Lab demonstrat + Guided stuc practice	dent	Teacher will explain and demonstrate the content /activities to students, student will practice the activities under guidance of teacher, teacher will identify their weaknesses and will provide necessary remedial and tutorials	3		3	W.I • . Mc • Re	med H.Cro Or its John Man cGraw elated	s equiva Doke " ageme ⁄-Hill Co	s by d Anglin alent Fleet ent", o. 1984 devices	av vid	Teacher will provide online vailable learnin material like deos, diagram animations, notographs eto	
					SCHEME OF ASSESSM	IENT									
S. No). Methc	od of Assessmen	nt	Descr	ription of Assessment	Maximun	m M	arks	Reso	urces	Requi	red	Exte	rnal / Internal	
1	1 Laboratory exam pl		Student will be		e asked to prepare repair wo given repair works and to teacher	10	0		Rating scale				External		
				I	NSTRUCTIONS FOR THE HOD/ FA	ACULTY ((IF A	NY)							

- 2. Disassembling the given synchromesh gearbox
- 3. Disassembling the given differential

FORMAT FOR REPAIR PLAN	(Lab assignment)
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		Date	LO No.
		Name of student	
1	General Information	Roll No.	
		Name of car sub-assembly	
		Name of component(s)	
		C. Description of detailed repair procedure	
		D. Sketch related to repair	
	Description of repair	G. Measuring tools required	
2	procedure	H. Repair tools required	
	and resources	I. Machines /devices / equipments required	
		J. Consumables required	
		K. Spare parts required	
		L. Approximate time required for repairs	
4	Additional in	formation (if required)	
5.	Signature of	student	

Assessment criteria (for each repair plan)* :-

- 1. Extent of appropriateness of required tools, machines, devices (05 marks)
- 2. Extent of appropriateness of required consumables ,spare parts and time (05marks)

*Note: - Give marks out of 10 for each repair plan and finally scale down the obtained sum of two into half and rounded to higher side whole number (if

necessary).

	ין יין אט		:					Bran	ch Code	0	Course Co	ode	CO Code	LO Cod	e –
KG	PV (Diplo	oma w	ing) Bho		SCHEME FOR LEARNIN	IG UU	ICOIVIE	Α	0 3	6	0	1	2	3	Format No. 4
τοι	JRSE NAME	Auto Ma	aintenance S	Service 8	& Repairs										
01	Description	Student	will be able	to main	tain / repair the given transmi	ssion ar	nd transaxle	/ Dr	ive tr	ain	and A	Axle			
	Description		will be ab ance activit	•	erform car transmission and	transa	xle / Drive	trai	n an	d A	Axle i	relat	ed gi	ven	specific repair
			1		SCHEME OF S	STUDY									
S. No	Learning C	Content	Teachiı Learning N	-	Description of T-L Process	Teach Hrs.	Pract /Tut Hrs.			LRs	Requ	ired			Remarks
1	Car transmi and transax Drive train a related follo common re maintenance related spe activities wh listed below	de / and Axle owing pair/ ce ecific hich are	Lab demonst + Guided st practi	ration cudent	Teacher will explain and demonstrate the content /activities to students, student will practice the activities under guidance of teacher, teacher will identify their weaknesses and will provide necessary remedial and tutorials	03	03	m ar O • Ar sy by U :	echan nd An r its e utom rstem y Jack SA	nics glin quiv otiv app Erja	valen ve tecl proac avec, ol, de	r.H.C nnold h 5 th Deln	ogy a editio nar	on	Teacher will provide online available learning materia like videos, diagrams, animations, photographs etc
		SCHEME OF ASSESSMENT													
S. N	o Metho	d of Asses	ssment		Description of Assessment	N	laximum Ma	rks	Re	sou	rces F	Requ	ired	E	xternal / Interna
1	1 Laboratory assignment engine			ngine re	will be asked to perform given pair related two specific activi f the teacher	ties	05			Ra	atings	scale			Internal
		INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													

List of repair related activities to be learned by the student:-

- 1. Adjustment of clutch paddle and clutch free travel
- 2. Replacing clutch plate with worn lining with new one
- 3. Removing the universal joint
- 4. Checking wheel bearing condition
- 5. Replacing axle bearing and seals
- 6. Adjustment of, shift-linkage of given gear-box, which is operated through gear shift lever

Assessment criteria* :-

- 1. Extent to which SOP has been followed (03 marks)
- 2. Extent to which student used appropriate tools (01marks)
- 3. Extent to which student used tools appropriately (01 marks)

*Note: - Give marks out of 5 for each activity and finally scale down the obtained sum of two activities to half and rounded to higher side whole number (if necessary).

KGPV COURSE CO Desci	• •		Bropal SC	HEME FOR LEARNING O									
	NAME Au					- A	4 0	3	6 0	1	3	1	Format No. 4
CO Desci		uto Mainter	nance Service &	Repairs								-	
	ription St	udent will b	be able to main	ain / repair given car brake syste	m								
LO Descr	ription St	udent will b	be able to maint	ain / repair the given problemation	c car brake	syste	em						
				SCHEME OF STU	DY								
S. No.	earning Con	tent	hing –Learning Method	Description of T-L Process	Teach Hrs.		act t Hrs.		LRs F	equi	red		Remarks
1	Trouble diagnosis of following common problems in disc , drum parking bral systems wh are listed be	Lab o n car and ke nich	demonstration + uided student practice	Teacher will explain and demonstrate the content /activities to students, student will practice the activities under guidance of teacher, teacher will identify their weaknesses and will provide necessary remedial and tutorials	03	С)3	 Book:- Automotive mechanics by W.H.Crouse and Anglin Or its equivalent Related Engine Manuals, Charts Related tool, device and equipments 				۲ ۱ ۱ ۵	Teacher will provide online available earning materia ike videos, diagrams, animations, photographs ete
		I		SCHEME OF ASSESS	MENT								
S. No.	Method o	of Assessme	nt D	escription of Assessment	Maximun	n Ma	arks	Res	ources	Requ	uired	Ext	ernal / Interna
1	1 Laboratory assignment diagr			rill be asked to perform trouble for the given three problem cases car braking system in front of	04	1	Rating scale			le		Internal	
			·	INSTRUCTIONS FOR THE HOD/ I	FACULTY (II	F AN	Y)						

- 2. Car pulls to one side when applying brakes
- 3. Soft or spongy pedal
- 4. Poor braking, requiring excessive paddle force
- 5. Brakes grab
- 6. Noisy brakes
- 7. One or all brakes drag
- 8. Car tends to move even after applying parking brakes

Assessment criteria (for each case)*:-

- 1. Correctness of adopted procedure (2 marks)
- 2. Correctness of identified cause (2 marks)

*Note: - Give marks out of 4 for each trouble diagnosis and finally scale down the obtained sum of three activities to one third and rounded to higher side whole number (if necessary).

	//D:							Branch	Code	Cou	rse C	ode	CO Code	LO Code	
KGP	v (Dipion	na w	/ing) Br	nopai	SCHEME FOR LEARNING O		ΊE	A 0	3	6	0	1	3	2	Format No. 4
COURS		Auto N	laintenan	ce Service	e & Repairs										
CO De	scription S	Studen	t will be a	ble to m	aintain / repair given car brake syste	em									
LO Des	scription S	Studen	t will be a	ble to pla	in repair for the given problem in th	e given ca	r br a	ake syst	em						
					SCHEME OF STU	DY									
S. No.	Learning Content	•	Teach Learning	-	Description of T-L Process	Teach Hrs.		Pract ut Hrs.		LRs	Re	quir	ed		Remarks
1	Preparation repair plate for follow repairs rel to car di drum an parking b system	ans ving lated isc, nd rake	La demons + Guided prac	stration - student	Teacher will explain and demonstrate the content/ activities to students, student will practice the activities under guidance of teacher, teacher will identify their weaknesses and will provide necessary remedial and tutorials	03		02		me W.H Or it • Rela Mar elate	echa .Cro An s eo ateo nual d to	anics ouse glin quiva d En ls, Cl	and alent		Teacher will provide online available learning materia like videos, diagrams, animations, photographs eto
I		1			SCHEME OF ASSESS	MENT					•	•			
S. No.	Method o	of Asse	essment		Description of Assessment	Maximu	ım N	Marks	F	Resou	rce	s Re	quire	d	External / Internal
1	Labora	atory e		brake sys	will be asked to perform given car tem repair / maintenance related ific activities in front of examiner	1	LO			Rat	ing	scal	e		External
					INSTRUCTIONS FOR THE HOD/	FACULTY (IF A	NY)							
	List of repair	works	for which	student w	ill learn to prepare the repair plans:-										
					brake shoes/ pads , lubricate and re-a	aaambla									

- 2. Remove, inspect brake drum /caliper assembly; measure and compare with specifications, take corrective actions if necessary
- 3. Retract and re-adjust caliper piston / Pre-adjust brake shoes and parking brake; install brake drums /disc caliper, brake pads /hub assemblies and wheel bearings; make final checks and adjustments
- 4. Bleed and/ or flush brake system and adjust pedal travel

		Date	LO No.
		Name of student	
L	General Information	Roll No.	
		Name of car sub-assembly	
		Name of component(s)	
		E. Description of detailed repair / inspection procedure	
		F. Sketch related to repair / inspection	
	Description of repair	M. Measuring tools required	
	procedure	N. Repair tools required	
	and resources	O. Machines /devices / equipments required	
		P. Consumables required	
		Q. Spare parts required	
		R. Approximate time required for repairs	
1	Additional in	formation (if required)	
5.	Signature of	student	

FORMAT FOR REPAIR PLAN (Lab assignment)

Assessment criteria (for each repair plan)* :-

1. Extent of appropriateness of required tools, machines, devices (05 marks)

2. Extent of appropriateness of required consumables ,spare parts and time (05marks)

*Note: - Give marks out of 10 for each repair plan and finally scale down the obtained sum of two into half and rounded to higher side whole number (if necessary).

הכי	ין יע							ranch	n Code	Co	urse (Code	CO Code	LO Code	
KGł	PV (Diplo	oma wii	ng) Bhol	pai S	CHEME FOR LEARNING O	UTCON	/IE A	C) 3	6	0	1	4	1	Format No. Z
COU	RSE NAME	Auto Mai	intenance S	Service &	Repairs								1		
CO D	escription	Student v	will be able	to main	tain / repair given car suspension a	nd steerin	ng systen	n /	body	or i	ts c	om	oone	nt	
lo d	escription	Student v	will be able	to diagn	ose the trouble in the given suspe	nsion and	steering	sys	stem	/ bo	dy [,]	or it	s cor	mpon	ent
		1			SCHEME OF STUD	γ									
S. No.	Learning	Content	Teachi Learning	-	Description of T-L Process	Teac h Hrs.	Pract /Tut Hr			LRs	Re	qui	red		Remarks
1	Trouble dia of common problems i suspension steering sy body and i componen listed belo	n in car n system, vstem, car ts its as	Lal demonst + Guided s pract	tration tudent	Teacher will explain and demonstrate the content activitie to students, student will practice the content activities under guidance of teacher, teacher will identify their weaknesses and wil provide necessary remedial and tutorials	05	04		m C O R N e R d	nech	anic e ar equ ed E als, ed t es a	cs by nd A uival Engir , Cha cool, and	ne arts	H. 1	Teacher will provide online available learning materia like videos, diagrams, animations, photographs eto
					SCHEME OF ASSESSN	IENT									
S. No	o. Metho	od of Asses	sment	D	escription of Assessment	Maximur	m Marks		R	esou	rce	s Re	quire	ed	External / Internal
1	Lab	oratory ex	am p	problems	vill be asked to find the cause of in two given engine cases in front al examiner	10	0			Rat	ing	scal	e		External
					INSTRUCTIONS FOR THE HOD/ F	ACULTY (I	IF ANY)								
Γroul	ole diagnosis	of followin	ng problems	will be le	arned by the student:-										
4	Hard steer	dia a													

- 2. Excessive play in steering
- 3. Wandering of the car
- 4. One brake drags
- 5. Soft or spongy brake pedal
- 6. Requires excessive brake pedal force
- 7. Improper suspension height
- 8. Suspension topping or bottoming out
- 9. Noise / vibrations from body component or their joints
- **10.** Removal of paint strips from surface of body parts

Assessment criteria (for each case):-

- 1. Correctness of adopted procedure (3 marks)
- 2. Correctness of identified cause (2 marks)

								ranc	h Coc	le	Cour	e Code	CO Code	LO Code	
KGF	יע (Dibio	ma wi	ing) Bho	pai	SCHEME FOR LEARNING (JUICC)	3	6	0 1	4	2	Format No. 4
COUF	RSE NAME	Auto M	aintenance	Service	& Repairs										
CO D	escription	Student	t will be able	e to mai	ntain/repair given car suspension a	nd steeri	ng system	/ b	ody	/ 01	its	comp	onent	t	
LO De	escription	Student	t will be able	e to plan	repair for the given problem in the	given sı	uspension a	nd	ste	er	ing s	yste	n / bo	ody or	its component
					SCHEME OF STUD	Y									
S. No.	Learning (Content	Teachi Learning N	-	Description of T-L Process	Teach Hrs.	Pract /Tut Hrs.			L	.Rs F	equi	red		Remarks
1	Preparation repair plan following re related to suspension steering sys body or its component	for epairs and stem /	Lab demonst + Guided st pract	ration tudent	Teacher will explain and demonstrate the content activities to students, student will practice the content activities under guidance of teacher, teacher will identify their weaknesses and will provide necessary remedial and tutorials	05	05	•	me W.I Or Rel Ma Rel	cha H.C its ate nua ate	anics rous equi d Er als, (d to	e an valer gine Chart	d Angl it s evices	in :	Teacher will provide online available learning materia like videos, diagrams, animations, photographs eto
			1		SCHEME OF ASSESSN	IENT	1								
S. No	o. Metho	od of Asse	essment		Description of Assessment	Maxim	um Marks		Res	sou	rces	Req	uired	Ex	ternal / Interna
1	1 Laboratory exam plans			plans for	udent will be asked to prepare repair ans for the two given repair works and 10 bmit them to external examiner					F	latin	g sca	le		External
					INSTRUCTIONS FOR THE HOD/ F	ACULTY	(IF ANY)								

- 2. Remove, inspect, replace, rack and pinion steering gear inner tie rod ends (sockets) and bellows boots.
- 3. Remove, inspect, replace the given leaf spring/ coil spring
- 4. Remove, inspect, and repair given shock absorber.
- 5. Remove, inspect and paint the given car body panel
- 6. Remove, inspect and remove the dent from the given car body panel

FORMAT FOR REPAIR PLAN (Lab assignment)

		Date	LO No.
		Name of student	
1	General Information	Roll No.	
		Name of car sub-assembly	
		Name of component(s)	
		Description of detailed repair / inspection procedure	
		Sketch related to repair / inspection	
	Description of repair	Measuring tools required	
2	procedure	Repair tools required	
	and resources	Machines /devices / equipments required	
		Consumables required	
		• Spare parts required	
		• Approximate time required for repairs	
4	Additional in	formation (if required)	
5.	Signature of	student	

Assessment criteria (for each repair plan)* :-

1. Extent of appropriateness of required tools, machines, devices (05 marks)

2. Extent of appropriateness of required consumables ,spare parts and time (05marks)

*Note: - Give marks out of 10 for each repair plan and finally scale down the obtained sum of two into half and rounded to higher side whole number (if necessary).

								h Code	Cours	Code	CO Code	LO Code	
KGł		oma Wing) Bh	nopai	SCHI	EME FOR LEARNING O	UICON	/IE A	0 3	6 () 1	4	3	Format No. Z
COUF	RSE NAME	Auto Maintenan	ce Service	e & Rep	airs					I		-	-
CO Do	escription	Student will be a	ble to ma	intain/	repair given car suspension an	d steerin	g system /	body	/ or its	comp	onent		
LO De	escription	Student will be a maintenance rel	•	-	iven suspension, steering syste	em, body	or its con	npone	ent rel	ated s	pecifi	c repa	ir /
					SCHEME OF STUDY	1							
S. No.	Learning	Content Tead	ching –Lea Method	-	Description of T-L Process	Teach Hrs.	Pract /Tut Hrs	•	LRs	Requi	red		Remarks
1	Car susper steering sy body or its componen following s repair/ ma related sp activities v listed belo	ystem, bit related specific aintenance becific which are	demonstr + uided stud practice	ent	Teacher will explain and demonstrate the content activities to students, student will practice the content activities under guidance of teacher, teacher will identify their weaknesses and will provide necessary remedial and tutorials		05	m M A O • R N • R	ook:- A nechan /.H.Cro nglin r its eo elated 1anuals elated nd equ	ics by use a uival Engin , Cha tool,	nd ent e rts device	pr av m vid ar	eacher will ovide online vailable learnin aterial like deos, diagrams himations, hotographs etc
					SCHEME OF ASSESSM	ENT							
S. No	o. Metho	od of Assessment		Descri	iption of Assessment	Maximu	m Marks	Re	source	s Req	uired	Ext	ernal / Interna
1	1 Laboratory assignment engine repa				Student will be asked to perform given engine repair / maintenance related two 05 specific activities in front of teacher				Ratii	ng sca	le		Internal
				IN	STRUCTIONS FOR THE HOD/ FA	CULTY (II	F ANY)						

- 2. Inspect and replace power steering hoses and fittings.
- 3. Inspect, remove, and/or replace upper and lower control arms, bushings, shafts, and rebound bumpers
- 4. Remove, inspect, replace, and/or adjust suspension system coil springs/leaf springs.
- 5. Inspect, remove, and/or replace strut rods and bushings.
- 6. Inspect, remove, and/or replace upper and/or lower ball joints.
- 7. Inspect, remove, and/or replace steering knuckle assemblies.
- 8. Dismount, inspect, and remount tire on wheel; balance wheel and tire assembly.
- 9. Perform tyre rotation in a given vehicle
- **10.** Remove/refinish car body dents

Assessment criteria* :-

- 1. Extent to which SOP has been followed (03 marks)
- 2. Extent to which student used appropriate tools (01marks)
- 3. Extent to which student used tools appropriately (01 marks)

*Note: - Give marks out of 5 for each activity, sum them and reduce the sum by multiplying it by ½ and round off to next whole number (if necessary).

							Brar	ich Code	Cou	se Cod	e CC Cod		
RGP		oma wir	ng) Bhopal	SCHEME FOR LEARNING	3 001C	OIVIE	Α	0 3	6	0	1 5	1	Format No.
COUR	SE NAME	Auto Ma	intenance Servi	ce & Repairs									
CO De	scription	Student	will be able to m	aintain / repair given car electric	al / electro	onic syst	em						
LO De	scription	Student	will be able to d	agnose the trouble in the given p	oroblemati	ic car ele	ctric	al / ele	ectroni	c sys	tem		
		·		SCHEME OF S	STUDY								
S. No.	Learning	Content	Teaching – Learning Meth	od Description of T-L Process	Teach Hrs.	Pract /Tut Hrs			LRs Re	quir	ed		Remarks
1	Trouble dia Common j in car st system, c system, c system ar and elec systems a belo	problems tarting ignition charging lighting nd wiring ctronic as listed	Lab demonstratio + Guided stude practice	content activities under	emonstrate the content activities to students, sudent will practice the ontent activities under guidance of teacher, acher will identify their weaknesses and will ovide necessary remedial				motive Crouse motive ronics s equive ted Eng ted Eng ted too pment	n and _l Ils,	Teacher will provide online available learning material like videos, diagrams, animations, photographs etc.		
	SCHEME OF ASSESSMENT												
S. No.		Method of AssessmentDescription of AssessmentMaximum MarksResources Required						External / Internal					
1		ratory nment		-	to diagnose trouble for the two given problems nd / or electronic system in front of teacher				4	Rati	ng Sca	le	Internal
				INSTRUCTIONS FOR THE HO	D/ FACUL	TY (IF AN	IY)						
List of	common pr	oblems of a	ar electrical and	electronic systems for which diagno	osis of caus	e is to be	learr	ed:-					

- 1. No cranking, lights stay bright/dim heavily/dim slightly/go out/ no lights at all
- 2. Charging system is under-charging /over charging the battery
- 3. Battery does not stay charged / corroded terminals
- 4. Malfunctioning of sensors in ECU
- 5. Engine fails to start but cranks normally/ backfires
- 6. Engine runs but misses/ backfires
- 7. Lights/ Horn/windshield wipers are not working

Assessment criteria (for each case)*:-

- 1. Correctness of adopted procedure (2 marks)
- 2. Correctness of identified cause (2 marks)

*Note: - Give marks out of 4 for each trouble diagnosis and finally scale down the obtained sum of two activities to half and rounded to higher side whole

number (if necessary).

RGPV (Diploma Wing) Bhopal				66					Branch Code			ırse (Code	CO Code	LO Code	
			SC	SCHEME FOR LEARNING OUTCOME				0	3	6	0	1	5	2	Format No. Z	
COUF	RSE NAME	Auto Mair	ntenance Serv	ice &	Repairs											
CO Description Student will be able to ma				nainta	in / repair given car electrical /	electro	nic syster	n								
.0 De	escription	Student w	ill be able to p	lan re	pair for the given problem in th	ne given	car elect	rical	l / el	ectro	onic	syst	tem.			
					SCHEME OF ST	UDY										
S. No.	Learning	Content	-	Teaching – earning Method Description of T-L			Pract /Tut H			LRs Required					Remarks	
1	Preparatic repair plan following in related to starting sy ignition sy charging s lights & wit system an electronic	n for repairs car rstem, rstem, ystem, iring d	Lab demonstrati + Guided stud practice		Teacher will explain and demonstrate the content activities to students, student will practice the content activities under guidance of teacher, teacher will identify their weaknesses and will provide necessary remedial and tutorials	04	03	 Book:- Automotive mechanics by W.H.Crouse and Anglin Automotive electrical and electronics By PL KOHU 				e d d	Teacher will provide online available learning material like videos, diagrams, animations, photographs etc.			
		· · ·			SCHEME OF ASSE	SSMENT	•									
S. No	o. Metho	od of Assess	ment	De	escription of Assessment	Ma	ximum N	/lark	ks Resources Required					d	External / Internal	
1	Lat	am plans	tudent will be asked to prepare repair lans for the two given repair works and ubmit them to examiner			10			Rating scale						External	
					INSTRUCTIONS FOR THE HOL)/ FACU	LTY (IF A	NY)								
	List of repa	ir works for	which student	will lea	arn to prepare the repair plans:-											

- 1. Inspect and clean battery; fill battery cells; check battery cables, connectors and clamps
- 2. Removing and installing starting motor /alternator
- 3. Removing and installing distributor /head lamp /horn
- 4. Inspect, test, repair or replace components, connectors, terminals, harnesses and wiring in car electrical /electronic system
- 5. Inspect, remove, replace A.C. compressor drive belt, pulley and tensioners

FORMAT FOR REPAIR PLAN (Lab assignment)

	General Information	Date	LO No.	
		Name of student		
1		Roll No.		
		Name of car sub-assembly		
		Name of component(s)		
		Description of detailed inspection/test/ repair procedure		
	Description of repair 2 procedure	Sketch related to inspection/test / repair		
		Measuring tools required		
2		Repair tools required		
	and resources	Machines /devices / equipments required		
		Consumables required		
		• Spare parts required		
		Approximate time required for repairs		
4	Additional in	formation (if required)		
5.	Signature of	student		

Assessment criteria (for each repair plan)* :-

1. Extent of appropriateness of required tools, machines, devices

(05 marks)

2. Extent of appropriateness of required consumables ,spare parts and time (05marks)

*Note: - Give marks out of 10 for each repair plan and finally scale down the obtained sum of two into half and rounded to higher side whole number (if necessary).

PCDV (Diplome Wing) Ph							Branch Code			Course Code			LO Code				
RGPV (Diploma Wing) Bhopal			par :	SCHEME FOR LEARNING OUTCOME					3	6	0	1	5	3	Format No.		
COUF	RSE NAME	Auto M	aintenance	Service	& Repairs											·	
CO Description Student will be able to ma			e to maii	ntain / repair given car electrica	l / elec	tronic syster	n										
LO Description Student will be able to per			e to perf	o perform given car electrical / electronic system related unique repair / maintenance activity											Ŷ		
					SCHEME OF S	STUDY	,										
S. No.	Learning	Content	Teachi Learning	•	Description of T-L Process	Teac Hrs.					LRs Required					Remarks	
1	Testing an /mainte related s activities starting s ignition s charging s lights & system electronic	nance pecific for car system, system, system, wiring n and	Lal demonst + Guided s pract	tration tudent	Teacher will explain and demonstrate the content activities to students, student will practice the content activities under guidance of teacher, teacher will identify their weaknesses and will provide necessary remedial and tutorials	04	03	 Book:- Au mechanics by and A Automotive e electronics Or its eq Related Engi Cha Related tool, equip 				oy V Ang ele s By qui gine nart I, de	W.H.Crouse nglin electrical and By P L Kohli uivalent ne Manuals, rts devices and			Teacher wil provide onlir available learning material like videos, diagrams, animations, photograph etc.	
		1			SCHEME OF ASS	ESSME	ENT										
S. No	. Metho	od of Asse	essment		Description of Assessment		Maximum Marks			Resources Required					d	External / Internal	
1	1 Laboratory assignment			electrica	will be asked to perform given on a lectronics related two specifies in front of the teacher		05		Rating scale						Internal		
					INSTRUCTIONS FOR THE HC	DD/ FA	CULTY (IF AN	IY)									

List of repair related activities to be learned by the student:-

- 1. Perform tests for knowing battery condition
- 2. Perform tests for knowing starter motor condition
- 3. Perform leak test in car air conditioning system
- 4. Timing the distributor to the engine; adjusting initial timing for starting and idling; adjusting spark advance;
- 5. Perform to set and adjust ignition timing with the help of timing light
- 6. Perform head light aiming

Assessment criteria* :-

- 1. Extent to which SOP has been followed (03 marks)
- 2. Extent to which student used appropriate tools (01marks)
- 3. Extent to which student used tools appropriately (01 marks)

*Note: - Give marks out of 5 for each activity and finally scale down the obtained sum of two activities to half and rounded to higher side whole number (if necessary).