

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	<ul style="list-style-type: none"> 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)													

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	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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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)														

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	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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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)