

CURRICULUM

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Auto Painter

(A Competency Based, Short-term Curriculum)



Council for Technical Education and Vocational Training

Curriculum Development Division

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Introduction

The competency based market oriented curriculum for **Auto Painter** is designed to produce employable workforce equipped with knowledge, skills, and attitudes related to painting occupation. In this curriculum, the trainees will practice skills of painting in the auto workshops. Once the trainees acquired the competencies they will have ample opportunity for wage employment and self-employment through which they will contribute in the national streamline of poverty reduction in the country. The skills and knowledge included in this curriculum improve their knowledge and skills and make them competent auto painter needed for the occupation.

Aim

The main aim of this program is to produce employable auto painters who will provide auto painting services in the auto workshops in the country as well as could create self employment opportunity in the country.

Objective

After completion of training the trainees will be able:

1. To be familiar with basic auto denting and painting technology;
2. To apply /follow safety measures in order to minimize lost of lives and properties;
3. To identify, enumerate and handle and/or operate tools, instruments, devices and equipment;
4. To perform minor maintenance of working tools and instruments, devices and equipment;
5. To clean body surface of auto using tools, equipment and material including chemical through removing rust, existing paints and stickers;
6. To prepare body surfaces applying different materials such as primer, metal fillers, surfacer, putty and temporary protecting coat;
7. To carry out painting applying different painting materials suited for various components through the means of tools and equipment;
8. To solve simple mathematical problems;
9. To apply communication skills; and
10. To manage and run small business;
11. To apply simple mathematical technique related occupation;
12. To be familiar with First Aid and HIV/AIDS;
13. To be familiar with occupational health and apply safe working technique; and
14. To apply Communication and Small Enterprise Development skills.

Course Description

This curricular programme is based on the job required to be performed by an auto painter. Therefore, this curriculum is designed into modules systems to provide knowledge and skills about auto painting focusing on latest practiced technology. It intends to provide the knowledge and skills on Safety measures, Tools and equipment handling, Operation and maintenance, Auto body surface cleaning, Auto body surface preparing, and Body painting. *It also includes Applied mathematics, Occupational health and safety, First aid, HIV/AIDS, Communication and Small Enterprise Development as sub modules under common module with the view to impart fundamental skills for livelihood.*

The duration of particular modules will be as mentioned in the course structure. There will be demonstration by instructors/trainers and the opportunity to practice skills/tasks necessary for this level of technicians. Trainees will practice & learn skills using typical tools, equipment, machines, and materials necessary for the program.

Duration

The total duration of this training program will be of 460 hours with out OJT.

Target Group

The target group for this training program will be school leavers having minimum of class seven educations. Preference will be given to the individuals of rural, poor, female, Dalit, Janjati, Disadvantaged Groups (DAGs) and conflict affected people.

Target location

The target location for this training program will be all over Nepal.

Group Size

The group size for this training program will be maximum 20, provided all necessary resources to practice the tasks/ competencies as specified in this curriculum.

Medium of Instruction

The medium of instruction for this program will be Nepali or English or both

Pattern of Attendance

The trainees should have 80% attendance in theory classes and 90% in practical/ performance to be eligible for internal assessments and final examinations.

Focus of Curriculum

This is a competency-based curriculum. This curriculum emphasizes on competency performance. 80% time is allotted for performance and remaining 20% time is for related technical knowledge. So, the main focus will be on performance of the specified competencies in this curriculum.

Entry Criteria

Individuals who meet the following criteria will be allowed to enter into this program:

- Minimum of seven class pass
- Physically and mentally fit
- Minimum of 15 years of age
- Should pass entrance examination

Instructional Media and Materials

The following instructional media and materials are suggested for the effective instruction and demonstration.

- **Printed Media Materials** (Assignment sheets, Case studies, Handouts, Information sheets, Individual training packets, Procedure sheets, Performance Check lists, Textbooks etc.).
- **Non-projected Media Materials** (Display, Models, Flip chart, Poster, Writing board etc.).
- **Projected Media Materials** (Opaque projections, Overhead transparencies, Slides etc.).
- **Audio-Visual Materials** (Audiotapes, Films, Slide-tape programs, Videodiscs, Videotapes etc.).
- **Computer-Based Instructional Materials** (Computer-based training, Interactive video etc.).

Teaching Learning Methodologies

The methods of teachings for this curricular program will be a combination of several approaches. Such as Illustrated Lecture, Group Discussion, Demonstration, Simulation, Guided practice, Practical experiences, Fieldwork and Other Independent learning.

- Theory: Mini talk, Discussion, Assignment, Group work.
- Practical: Demonstration, Observation, Guided practice and Self-practice.

Follow up Provision

- First follow up: Six months after the completion of the program
- Second follow up: Six months after the completion of the first follow up
- Follow up cycle: In a cycle of one year after the completion of the second follow up for five years

Grading System

The trainees will be graded as follows based on the marks in percentage secured by them in tests/ evaluations.

- Distinction: Passed with 80% or above
- First Division: passed with 75% or above
- Second Division: passed with 65% or above
- Third Division: passed with 60% or above

Trainees Evaluation Details

- Continuous evaluation of the trainees' performance is to be done by the related instructor/ trainer to ensure the proficiency over each competency under each area of the whole course.
- Related technical knowledge learnt by trainees will be evaluated through written or oral tests as per the nature in the institutional phase of training.
- Trainees must secure minimum marks of 40% and 60% in theory and practical evaluations respectively.
- There will be three internal evaluations and one final evaluation of the whole course.
- The ratio between internal and final examination of knowledge test will be 20:80 but for the performance test it will just reverse.
- The entrance test will be administered by the concerned training institute.

Trainers' Qualification (Minimum)

- Diploma in auto mobile or equivalent in related field
- Good communicative and instructional skills
- Minimum 3 years experience in related field

Trainer-Trainees Ratio

- In theory classes 1(trainer): 20 (trainees)
- In practical classes (in workshop and laboratory) 1(trainer): 10 (trainees)

Suggestions for Instruction**1. Select Objective**

- Write Objective of cognitive domain.
- Write Objective of psychomotor domain.
- Write Objective of affective domain

2. Select Subject matter

- Study subject matter in detail.
- Select content related to cognitive domain.
- Select content related to psychomotor domain.
- Select content related to affective domain.

3. Select Instructional Methods

- Teacher centered methods: like lecture, demonstration, question answers inquiry, induction and deduction methods.
- Student initiated methods like experimental, field trip/excursion, discovery, exploration, problem solving, and survey methods.
- Interaction methods like discussion, group/team teaching, microteaching and exhibition.
- Dramatic methods like role play and dramatization

4. Select Instructional method (s) on the basis of Objective of lesson plans and KAS domains.
5. Select appropriate educational materials and apply at right time and place.
6. Evaluate the trainees applying various tools to correspond the KAS domains.
7. Make plans for classroom / field work / workshop organization and management.
8. Coordinate among Objective, subject matter and instructional methods.
9. Prepare lesson plan for theory and practical classes.
10. Deliver /conduct instruction / program.
11. Evaluate instruction/ program.

Special suggestion for the performance evaluation of the trainees

1. Perform task analysis.
2. Develop a detail task performance checklist.
3. Perform continuous evaluation of the trainees by applying the performance checklist.

Suggestion for skill training

1. Demonstrate task performance in normal speed.
2. Demonstrate slowly with verbal description of each and every step in the sequence of activity of the task performance using question and answer techniques.
3. Repeat 2 for the clarification on trainees demand if necessary.
4. Perform fast demonstration of the task.

Provide trainees the opportunities to practice the task performance demonstration

1. Provide opportunity to trainees to have guided practice.
2. Create environment for practicing the demonstrated task performance.
3. Guide the trainees in each and every step of task performance.
4. Provide trainees to repeat and re-repeat as per the need to be proficient on the given task performance.
5. Switch to another task demonstration if and only trainees developed proficiency in the task performance.

Other suggestions

1. Apply principles of skill training.
2. Allocate 20% time for theory classes and 80% time for task performance while delivering instructions.
3. Apply principles of learning relevant to the learner's age group.
4. Apply principles of intrinsic motivation.
5. Facilitate maximum trainees' involvement in learning and task performance activities.
6. Instruct the trainees on the basis of their existing level of knowledge, skills and attitude.

Certificate Requirements

The related training institute will provide the training certificate of "**Auto Painter**" to those trainees who successfully complete all the requirements as prescribed by the curriculum.

Provision of Skill Testing

The graduates who have completion certificate of "**Auto Painter**" may sit in the skill testing examination of **Level one (Level- 1)** as provisioned and administered by the National Skill Testing Board.

Physical Facilities

The theory class rooms at least should have area of 10 square feet per trainee and in the workshop it should be at least of 30 square feet per trainees. All the rooms and laboratory should be well illuminated and ventilated.

<i>Well equipped workshop with adequate space</i>	<i>1 (No.)</i>
<i>Well furnished class room with adequate space</i>	<i>1 (No.)</i>
<i>Office room equipped with modern facilities</i>	<i>1 (No.)</i>
<i>Principle room equipped with modern facilities</i>	<i>1 (No.)</i>
<i>Reception room equipped with modern facilities</i>	<i>1 (No.)</i>

List of Tools and Equipment

- | | |
|------------------------------------|--|
| 1. Automatic powder coating gun | 28. Micro film machine |
| 2. Color codes (specified) | 29. Nose mask |
| 3. Colorimeter | 30. Overall |
| 4. Compressor | 31. Paint booth |
| 5. Computerized color mixer | 32. Paint brush-2" |
| 6. Disposable safety kit | 33. Paint measuring ruler |
| 7. Disposable strainer | 34. Paint mixing ruler Polisher-pneumatic |
| 8. Double action grinder- power | 35. Polisher-power |
| 9. Double action grinder-pneumatic | 36. Pop revert gun |
| 10. Ear protector | 37. Pressure spray gun |
| 11. Electronic weighing machine | 38. Rubber pad |
| 12. Fire extinguisher | 39. Sander |
| 13. First aid box | 40. Sanding block |
| 14. Full face mask | 41. Scraper |
| 15. Galvanize coating gun | 42. Sealant gun Re-useable strainer |
| 16. Glass pads | 43. Spray gun cleaner Hacksaw frame |
| 17. Goggles | 44. Spray gun repair kit |
| 18. Gravity spray gun | 45. Suction spray gun |
| 19. Grinder | 46. Tack cloth |
| 20. Gun cleaner | 47. Tool kit |
| 21. Hand drill | 48. Vacuum cleaner |
| 22. Heater gun Ladder | 49. Vibrating sander |
| 23. High pressure spray gun | 50. Viscosity gauge |
| 24. Hose pipe | 51. Waxing cable gun High pressure under sealant gun |
| 25. Knife low pressure spray gun | 52. Wire brush |
| 26. Lender | |
| 27. Manual powder coating gun | |

Course Structure of Auto Painter

Part A. Specialized modules

S.N.	Modules and sub-modules	Nature	Time (hrs)	Full marks
1	Safety Measures and Tools & Equipment <ul style="list-style-type: none"> • Applying Safety Measures • Operating and Maintaining Tools and Equipment 	T+P	30	25
			13	10
			17	15
2	Body Surface Cleaning	T+P	70	50
3	Body Surface Preparing	T+P	120	100
4	Body Painting	T+P	170	125
	Total		390	300

Part B. Common module

S.N.	Sub-modules	Nature	Time (hrs)	Full marks
1	Applied Mathematics	T+P	20	50
2	Occupational Health & Safety	T+P	10	
3	First Aid	T+P	5	
4	HIV/AIDS	T+P	5	
5	Communication	T+P	10	
6	Small Enterprise Development	T+P	20	
	Total		70	50
	Grand total (Part A &B)		460	350

Module 1

Safety Measures and Tools & Equipment

Description:

This module comprises with two sub modules viz; Safety measures and Tools and equipment. The first sub module is designed to equip trainees with the knowledge and skills about safety measures must to be applied at auto painting shop in order to provide the service safely. Similarly second sub module deals with tool and equipment identification, handling, operation and minor maintenance.

Objectives:

After completion of this module the trainees will be able:

1. To apply safety measures in order operate the service safely minimizing damage and lost of properties and lives
2. To identify /operate/handle tools and equipment
3. To carry out minor maintenance of hand tools

Module Structure (M1)

S.N	Sub modules	Nature	Time (hours)	Full marks
1	SM1: Applying Safety Measures	T+P	13	10
2	SM2: Operating and Maintaining Tools & Equipment	T+P	17	15
		Total	30	25

Module 1
Sub module 1.1
Applying Safety Measures

Description:

This sub module intends to provide the knowledge and skills on Safety measures which must to be applied while working in the workshop safely minimizing lost of lives and properties. This course also provides knowledge and skills about personal safety and hygiene, Safety measures, Work place safety and Tools and equipment safety.

Objectives:

After completion of this module the trainees will be able:

1. To orient with personal safety and hygiene
2. To apply personal safety measures
3. To apply tools, equipment and materials safety measures
4. To apply work place safety measures

Duration: 13 hours

Tasks:

1. Orient with personal safety /hygiene
2. Fix safety notices/ signs
3. Follow safety precautions/instructions
4. Maintain first aid box
5. Prevent electrical hazard
6. Apply safety precaution for fire hazards in paint booth
7. Store highly inflammable materials
8. Store paints
9. Apply first aid
10. Use fire extinguisher
11. Wear paint booth safety kit
12. Protect environment

Task Analysis

Task No: 1 Orient with personal safety /hygiene.

Time 1 hr
Theory 1 hr
Practical 0 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Receive instruction. 2. Define safety precaution/personal hygiene. 3. Enlist importance of safety precaution/personal hygiene. 4. Enlist the things that should be considered while acquiring personal safety/hygiene 5. Collect information on hazards that may occur in their working condition. 	<p><u>Condition(Given):</u> Safety brochure, manuals, notice, posture, written instructions</p> <p><u>Task (What):</u> Orient with personal safety precaution/ hygiene.</p> <p><u>Standard (How Well):</u> Personal safety precaution and personal hygiene oriented.</p>	<ul style="list-style-type: none"> ➤ Introduction of personal hygiene and safety precaution ➤ Importance of safety precaution and personal hygiene ➤ Hazards related to jobs (Accident hazards, Physical hazards, Chemical hazards, Biological hazards and Ergonomic, psychosocial and organizational factors) ➤ Preventive measures

Required tools/equipment:
Safety:

Task Analysis

Task No: 2 Fix safety notice/ signs.

Time 1 hr
Theory 0.5 hr
Practical 0.5 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Read different safety signs and notice 2. Print safety sign/ notices 3. Educate safety sign and notices to all colleagues 4. Put the notices and sign in all critical places 	<p><u>Condition(Given):</u></p> <p>Safety notices and signs</p> <p><u>Task (What):</u></p> <p>Fix safety notice/ signs.</p> <p><u>Standard (How Well):</u></p> <p>Safety sign fixed according to the international rules at the work place.</p>	<ul style="list-style-type: none"> ➤ Safety sign and its importance ➤ Different safety notice and signs

Required tools/equipment:

Safety:

Task Analysis

Task No: 3 Follow safety precautions/instructions.

Time 1 hr
Theory 1 hr
Practical 0 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Receive instruction. 2. Read/interpret safety signs and notice 3. Follow personal safety precautions/instructions 4. Follow tools and equipments safety precautions/instructions 5. Follow work place safety precautions/instructions 6. Ask for the instructions if could not understand 7. Follow the instruction step by step 	<p><u>Condition(Given):</u> Safety brochure, manuals, notice, posture, written instructions</p> <p><u>Task (What):</u> Follow safety precautions/instructions.</p> <p><u>Standard (How Well):</u> Different safety signs and notice collected, read and interpreted. Different safety precautions/ instructions followed in sequential order.</p>	<ul style="list-style-type: none"> ➤ Concept of safety precaution ➤ Different safety precautions (Personal, tools and equipment and work place) ➤ Safety rules and regulation ➤ Safety notice and signs ➤ Different safety measures

Required tools/equipment:
Safety:

Task Analysis

Task No: 4 Maintain first aid box.

Time 1 hr
Theory 0.5 hr
Practical 0.5 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Take a list of medicine to be kept inside first aid box from medical practitioner. 2. Purchase those medicine from medical shop 3. Put those medicine in a first aid box and make a list of medicine and quantity 4. Put the first aid box in a accessible place 	<p><u>Condition(Given):</u> First aid box and medicine</p> <p><u>Task (What):</u> Maintain first aid box</p> <p><u>Standard (How Well):</u> Necessary medicine and materials needed for first aid maintained.</p>	<ul style="list-style-type: none"> ➤ Importance of first aid ➤ First aid kit with necessary medicine and materials ➤ Usage of different medicine

Required tools/equipment:

Safety:

Task Analysis

Task No: 5 Prevent electrical hazard.

Time 1 hr
Theory 0. hr
Practical 1 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check the electrical wiring 2. Ensure all the wire connection is properly taped 3. Ensure the proper earthing 4. Ensure non of the socket and pin is loosely connected 5. Use rubber shoe while working with electrical lines 	<p><u>Condition(Given):</u> Electrical wiring, instruments and devices</p> <p><u>Task (What):</u> Prevent electrical hazard</p> <p><u>Standard (How Well):</u> Electrical connections, devices and instruments checked before working.</p>	<ul style="list-style-type: none"> ➤ Principle of electricity generation ➤ Concept of and current, voltage & resistant ➤ Parallel and series connection ➤ Concept of earthing ➤ Electrical devices, instrument & appliances ➤ Loose connection and necked eye ➤ Possible hazards

Required tools/equipment:

Safety:

- * Do not touch any electrical connection and appliance with wet hand

Task Analysis

Task No: 6 Apply safety precautions for fire hazards in paint booth.

Time 1 hr
Theory 0.5 hr
Practical 0.5 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Check the electrical wiring 2. Ensure all the wire connection is properly taped 3. Ensure the proper earthing 4. Use specified filters only inside paint booth	<p><u>Condition(Given):</u> Painting booth</p> <p><u>Task (What):</u> Apply safety precautions for fire hazards in paint booth</p> <p><u>Standard (How Well):</u> The operation manual of paint booth followed.</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Safety in paint booth

Required tools/equipment:

Safety:

- * Do not heat booth excessively
- * Do not fire anything inside painting booth

Task Analysis

Task No: 7 Store highly inflammable materials.

Time 1 hr
Theory 0.5 hr
Practical 0.5 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Segregate all inflammable material 2. Seal the container carefully 3. Select a dry cool safe place where fire can not reach to store inflammable material 4. Put the rack and make specific location to place specific products 5. Store inflammable material in a designated location 6. Mark "Inflammable material" in this location 7. Put fire extinguisher as required in this store 	<p>Condition (Given): Store, inflammable materials</p> <p>Task (What): Store highly inflammable materials</p> <p>Standard (How Well): Highly inflammable materials stored as per instructions.</p>	<ul style="list-style-type: none"> ➤ Function of store ➤ Safety of inflammable material ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Check expiry date of fire extinguisher
- * Do not store materials related to fire near this store

Task Analysis

Task No: 8 Store paints.

Time 2 hrs
Theory 1 hr
Practical 1 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Receive paints 2. Fill the stock register and bin card 3. Seal the paint firmly 4. Clean the location 5. Put the paints in specified location	<p><u>Condition (Given):</u> Paint racks, stock ledger and bin cards</p> <p><u>Task (What):</u> Store paints.</p> <p><u>Standard (How Well):</u> Booth quantity matched with physical quantity.</p>	<ul style="list-style-type: none"> ➤ Principle of functioning of store ➤ Principle of inventory management ➤ Details of stock register and bin card ➤ Procedure ➤ Safety precautions

Required tools/equipment: Stock register, bin card

Safety:

- * Fire extinguisher should be placed inside paint store
- * Should not fire inside paint store

Task Analysis

Task No: 9 Apply first aid.

Time 1 hr
Theory 0.5 hr
Practical 0.5 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Identify different kind of hazards in paint shop 2. Perform first aid for burn 3. Perform artificial respiration 4. Perform first aid for cuts 	<p><u>Condition (Given):</u> First aid box</p> <p><u>Task (What):</u> Perform first aid.</p> <p><u>Standard (How Well):</u> First aid procedures for different cases applied.</p>	<ul style="list-style-type: none"> ➤ Importance of first aid ➤ First aid kit with necessary medicine and materials ➤ First aid technique

Required tools/equipment:

Safety:

- * First aid box need to be maintained
- * First aid technique need to be followed exactly as specified

Task Analysis

Task No: 10 Use fire extinguisher.

Time 1 hr
Theory 0.5 hr
Practical 0.5 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check the expiry date of fire extinguisher 2. Check the type of fire extinguisher 3. Select the fire extinguisher as per the nature of the fire 4. Spray the fire extinguisher taking it closer to the fire 5. Clean the debris 	<p><u>Condition (Given):</u> Fire extinguisher, fire</p> <p><u>Task (What):</u> Use fire extinguisher.</p> <p><u>Standard (How Well):</u> Fire stopped through applying fire extinguisher.</p>	<ul style="list-style-type: none"> ➤ Types of fire extinguisher ➤ Instructions given ➤ Function and its use of fire extinguisher

Required tools/equipment:

Safety:

- * To check expiry date of fire extinguisher
- * Clear distance to be maintained with fire while spraying so that it will not burn your hand

Task Analysis

Task No: 11 Wear paint booth safety kit.

Time 1 hr
Theory 0.5 hr
Practical 0.5 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Find the paint booth safety kit 2. Put on the kit before entering into the paint booth 3. Remove the kit once work is over 4. Clean it properly and store in its location 	<p><u>Condition (Given):</u> Paint booth safety kit</p> <p><u>Task (What):</u> Wear paint booth safety kit.</p> <p><u>Standard (How Well):</u> Paint booth safety kit applied.</p>	<p>➤ Function of different components of safety kit and its usage</p>

Required tools/equipment:

Safety:

- * Follow the instruction

Task Analysis

Task No: 12 Protect environments.

Time 1 hr
Theory 0.5 hr
Practical 0.5 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Minimize the wastage of painting material during preparation of material 2. Use separate gun for different material 3. Segregate different types of wastage before disposal 4. Operate burner of paint booth when ever required 	<p><u>Condition (Given):</u> Different types of wastage</p> <p><u>Task (What):</u> Protect environment.</p> <p><u>Standard (How Well):</u> Required quantity of materials took and consumed. Paint wastage disposed with out polluting environment.</p>	<ul style="list-style-type: none"> ➤ Types of pollution ➤ Effect of paint wastage in environmental pollution

Required tools/equipment:

Safety:

- * Take care when handling inflammable material
- * Do not throw wastage in drain

Module 1
Sub module 1.2
Operating and Maintaining Tools & Equipment

Description:

This sub module intends to provide the knowledge and skills on identification, enumeration, and handling of tools and operation of equipment related to the occupation. It also provides knowledge and skills on maintenance minor maintenance of tools and equipments.

Objectives:

After completion of this module the trainees will be able:

1. To identify and enumerate of tools, equipment and materials
2. To handle tools and operate equipment
3. To perform minor maintenance of tools and equipment

Duration: 17 hours

Tasks:

1. Identify/enumerate tools/equipment/ materials
2. Operate paint booth
3. Operate/ maintain painting gun
4. Operate compressor
5. Operate refrigerant type air dryer
6. Make sanding block
7. Service compressor
8. Maintain paint booth filter
9. Change paint booth filter
10. Clean painting gun

Task Analysis

Task No: 1 Identify/enumerate tools/equipment/materials.

Time 2 hrs
Theory 1 hr
Practical 1 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Receive instructions 2. Visit tools/equipment/materials display room. 3. Identify/enumerate different tools. 4. Enlist the function of identified and different enumerated tools. 5. Identify/enumerate different equipment. 6. Enlist the function of different identified and enumerated tools. 7. Identify/enumerate different painting materials /chemicals. 8. Enlist the application of identified and enumerated materials. 9. Keep records. 	<p><u>Condition (Given):</u> Tools, equipment and materials displaying</p> <p><u>Task (What):</u> Identify/enumerate tools/equipment/materials.</p> <p><u>Standard (How Well):</u> Different tools, equipment and materials identified and enumerated as well as their functions enlisted.</p>	<ul style="list-style-type: none"> ➤ Identification of different tools, equipment and materials ➤ Function of different tools and equipment ➤ Application of materials ➤ Identification and enumerating procedure

Required tools/equipment: Different tools, equipment and materials

Safety:

Task Analysis

Task No: 2 Operate paint booth.

Time 1.5 hrs
Theory 0.5 hr
Practical 1 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean the paint booth 2. Check the fuel level of paint booth; if fuel is not sufficient fill it. 3. Take in the vehicle to be painted after completion of all preparation 4. Put on paint booth safety kit 5. Operate booth ventilator/ feed air fan 6. Closed the door 7. Spray the paint 8. Come out from the paint booth 9. Operate burner and blower to dry the paint 10. Maintain the temperature of about 60 to 70 degree Celsius for about half an hour by setting booth heating timer. 11. Take out the painted vehicle 	<p><u>Condition (Given):</u> Paint booth, vehicle to be painted</p> <p><u>Task (What):</u> Operate paint booth.</p> <p><u>Standard (How Well):</u> Paint not flowed from painting surface. Pain booth operated according to manufacturer's operation manual.</p>	<ul style="list-style-type: none"> ➤ Identification of paint booth ➤ Pars of paint booth ➤ Function of paint booth ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Always use paint booth safety kit
- * Filter of paint booth should be clean

Task Analysis

Task No: 3 Operate/ maintain painting gun.

Time 2.5 hrs
Theory 0.5 hr
Practical 2 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Get the painting gun 2. Adjust the air pressure from FRL according to painting gun manual 3. Connect the air line into the painting gun 4. Put the prepared paint in to the container of the gun 5. Adjust the nozzle for spray 6. Spray the paint in uniformly on the surface 7. Clean the painting gun with thinner/ kerosene thoroughly before storing 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Operate/Maintain painting gun.</p> <p><u>Standard (How Well):</u> Spray should be uniform. Painting gun operated and maintained according to manufacturer's operation and service manuals.</p>	<ul style="list-style-type: none"> ➤ Identification of painting gun ➤ Parts of painting gum ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual

Task Analysis

Task No: 4 Operate compressor.

Time 1.5 hrs
Theory 0.5 hr
Practical 1 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Check the oil of the compressor 2. Open the regulator in the pneumatic lines 3. Turn on compressor by pressing on control switch 4. Turn off compressor by pressing off control switch	<p><u>Condition (Given):</u> Non functioning compressor</p> <p><u>Task (What):</u> Operate compressor.</p> <p><u>Standard (How Well):</u> Compressor operated according to manufacturer's operation manual.</p>	<ul style="list-style-type: none"> ➤ Identification of compressor ➤ Parts of compressor ➤ Principle of operation of compressor ➤ Types of compressor ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Compressor

Safety:

- * Care should be taken while using electricity
- * Care should be taken while running compressor

Task Analysis

Task No: 5 Operate refrigerant type air dryer.

Time 1.5 hrs
Theory 0.5 hr
Practical 1 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Operate compressor 2. Operate air dryer by pressing “on” control switch 3. Switch of air dryer by pressing “off” control switch	<p><u>Condition (Given):</u> Air dryer</p> <p><u>Task (What):</u> Operate refrigerant type air dryer.</p> <p><u>Standard (How Well):</u> Outflow of air made free from moisture. Refrigerant type air dryer operated according to manufacturer’s operation manual.</p>	<ul style="list-style-type: none"> ➤ Principle of operation of air dryer ➤ Types of air dryer ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Air dryer

Safety:

- * Care should be taken while using electricity
- * Care should be taken while running air dryer

Task Analysis

Task No: 6 Make sanding block.

Time 1.5 hrs
Theory 0.5 hr
Practical 1 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Collect necessary tools and materials 2. Take a wooden block 3. Cut it with saw for the required size 4. Round the edge of the block with file	<p><u>Condition (Given):</u> Wooden block</p> <p><u>Task (What):</u> Make sanding block.</p> <p><u>Standard (How Well):</u> Block of different size to made according to the application.</p>	<ul style="list-style-type: none"> ➤ Usage of saw and file ➤ Procedure ➤ Safety precautions

Required tools/equipment: Air dryer

Safety:

- * Care should be taken while using saw

Task Analysis

Task No: 7 Service compressor.

Time 2 hrs
Theory 0.5 hr
Practical 1.5 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check the oil level/ top up if required 2. Change the oil according to the manufacture's recommendation 3. Clean/ change the filter 4. Drain the water form the air tank 	<p><u>Condition (Given):</u> Non functioning compressor</p> <p><u>Task (What):</u> Maintain paint booth filter.</p> <p><u>Standard (How Well):</u> Compressor cleaned according to manufacturer's service manual. Compressor made air circularly</p>	<ul style="list-style-type: none"> ➤ Properties of filter ➤ Application of filter ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Compressor

Safety:

- * Follow manufacturer's service manual

Task Analysis

Task No: 8 Maintain paint booth filter.

Time 1.5 hr
Theory 0.5 hr
Practical 1 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check the primary filter of the paint booth at the air suction point 2. If choked, take out and clean it by shaking it 3. Use low pressure air to clean it 4. Check the roof filter of the paint booth 5. Remove the roof filter 6. Use low pressure air to clean it 7. Check the filter at the exhaust (floor filter) 8. Use low pressure air to clean it 	<p><u>Condition (Given):</u> Paint booth</p> <p><u>Task (What):</u> Maintain paint booth filter.</p> <p><u>Standard (How Well):</u> Paint booth filter maintained according manufacturer's service manual. Paint booth filter cleaned and made air circularly.</p>	<ul style="list-style-type: none"> ➤ Function of filter ➤ Properties of filter ➤ Application of filter ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Compressor

Safety:

- * High pressure may damage filter
- * Use safety mask, Goggles and glove while cleaning filter

Task Analysis

Task No: 9 Change paint booth filter.

Time 1.5 hr
Theory 0.5 hr
Practical 1 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check the primary filter of the paint booth at the air suction point 2. If choked, take out and clean it by shaking it 3. Use low pressure air to clean it 4. Check the air flow if it is not sufficient replace the filter 5. Check the roof filter of the paint booth 6. Remove the roof filter 7. Use low pressure air to clean it 8. Check the air flow if it is not sufficient replace the filter 9. Check the filter at the exhaust (floor filter) 10. Use low pressure air to clean it 11. Check the air flow if it is not sufficient replace the filter 	<p><u>Condition (Given):</u> Paint booth</p> <p><u>Task (What):</u> Change paint booth filter.</p> <p><u>Standard (How Well):</u> Paint booth filter changed according manufacturer's service manual. Paint booth filter cleaned and made air circularly.</p>	<ul style="list-style-type: none"> ➤ Properties of filter ➤ Application of filter ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Compressor

Safety:

- * High pressure may damage filter
- * Use safety mask, Google and glove while cleaning filter

Task Analysis

Task No: 10 Clean painting gun.

Time 1.5 hrs
Theory 0.5 hr
Practical 1 hr

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Remove the gun from air line 2. Clean the reservoir with thinner/ kerosene 3. Remove the nozzle 4. Clean it with gun cleaner chemical 5. Allow it to dry 6. Assemble the painting gun 7. Store it in to its location 	<p><u>Condition (Given):</u> Painting gun</p> <p><u>Task (What):</u> Clean painting gun.</p> <p><u>Standard (How Well):</u> All paints removed from the gun.</p>	<ul style="list-style-type: none"> ➤ Principle of operation of painting gun ➤ Different component of painting gun ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Brush

Safety:

- * Care should be taken while handling inflammable material

Module 2

Body Surface Cleaning

Description:

This module is designed to equip trainees with the knowledge and skills on auto body surface cleaning technique in general and Removing of existing paints, Removing of rust, Removing of oil and grease and Removing of dampness of body surface in particular.

Objectives:

After completion of this module the trainees will be able:

1. To select and apply cleaning materials equipment
2. To remove existing paint from body surface of autos through the application of materials and equipment
3. To remove rust, oil and grease as well as dampness of body surface using materials and equipment

Module Structure (M2)

S.N	Modules	Nature	Time (hours)	Full marks
1	M2: Body Surface Cleaning	T+P	70	50

Tasks:

1. Clean dust using vacuum cleaner
2. Select/apply emery paper
3. Remove paint in aluminum bodies by double action grinder.
4. Remove paint from body using hand burner
5. Remove rust using grinder
6. Remove rust using power wire brush
7. Remove rust using sand paper
8. Remove rust using chemicals
9. Remove paint using chemical
10. Remove oil and grease using chemical
11. Remove dampness of body surface

Task Analysis

Task No: 1 Clean dust using vacuum cleaner.

Time 6 hrs
Theory 1 hr
Practical 5 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Open all the door of the vehicle 2. Plug in vacuum cleaner in electrical point 3. Operate vacuum cleaner 4. Move sucking end of the vacuum cleaner towards the dusty area 5. Close the door 6. Put the vacuum cleaner back to its location 	<p><u>Condition (Given):</u> Vacuum cleaner, dusty vehicle</p> <p><u>Task (What):</u> Handle vacuum cleaner Clean dust using vacuum cleaner</p> <p><u>Standard (How Well):</u> Vehicle made free from dust.</p>	<ul style="list-style-type: none"> ➤ Function of vacuum cleaner ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Care should be taken while using electrical appliance

Task Analysis

Task No: 2 Select/apply emery paper.

Time 4 hrs
Theory 1 hr
Practical 3 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check the surface where emery paper is to be used 2. Use low number emery paper in case of coarse surface 3. Use finest quality emery paper after applying surfacer and check putty 4. Clean the surface 	<p><u>Condition (Given):</u> Dented vehicle, emery paper</p> <p><u>Task (What):</u> Select/apply emery paper</p> <p><u>Standard (How Well):</u> Different types of Emery paper selected and applied to make surface smooth.</p>	<ul style="list-style-type: none"> ➤ Function of emery paper ➤ Specification of emery paper ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Emery paper of different grade

Safety:

- * Care should be taken while selecting emery paper
- * Different number of emery paper should be selected as specified by the paint manufacturer for different application
- * Sanding should be even

Task Analysis

Task No: 3 Remove paint in aluminum bodies by double action grinder.

Time 10 hrs
Theory 1 hr
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Mark the part of the body from where paint need to be removed 2. Plug in double action grinder 3. Smoothly operate grinder on the surface from where paint need to be removed 4. Clean the area 	<p><u>Condition (Given):</u> Painted aluminum panel, double action grinder</p> <p><u>Task (What):</u> Handle double action grinder Remove paint in aluminum bodies by grinder.</p> <p><u>Standard (How Well):</u> No paint left in the part of the vehicle from where paint removed.</p>	<ul style="list-style-type: none"> ➤ Painting technology ➤ Principle of operation of double action grinder ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Scraper, Hand burner

Safety:

- * Care should be taken when using tools and equipment

Task Analysis

Task No: 4 Remove paint from body using hand burner.

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Mark the part of the body from where paint need to be removed 2. Operate hand burner 3. Heat the surface from where paint need to be removed and spontaneously scrap the paint with scrapper 4. Clean the area 	<p><u>Condition (Given):</u> Vehicle, hand burner, scrapper</p> <p><u>Task (What):</u> Remove paint from body using hand burner.</p> <p><u>Standard (How Well):</u> No paint left in the part of the vehicle from where paint scrapped.</p>	<ul style="list-style-type: none"> ➤ Principle of paint technology ➤ Usage of hand burner ➤ Procedure ➤ Safety precaution

Required tools/equipment:

Scrapper, Hand burner

Safety:

- * Care should be taken when using tools and equipment

Task Analysis

Task No: 5 Remove rust using grinder.

Time 6 hrs
Theory 1 hr
Practical 5 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Locate the area from where rust to be removed 2. Plug in grinder 3. Operate grinder and rotate grinding stone across the area from where rust has to be removed 4. Clean the surface 5. Put the equipment back to its location. 	<p><u>Condition (Given):</u> Rusty piece of metal, grinder</p> <p><u>Task (What):</u> Handle grinder. Remove rust using grinder.</p> <p><u>Standard (How Well):</u> The surface of vehicle made free from rust and made it cleaned.</p>	<ul style="list-style-type: none"> ➤ Function of grinder ➤ Grinder handling technique ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Care should be taken while using tools and equipment

Task Analysis

Task No: 6 Remove rust using power wire brush.

Time 6 hrs
Theory 1 hr
Practical 5 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Locate the area from where rust to be removed 2. Plug in grinder 3. Operate power wire brush over the area from where rust has to be removed 4. Clean the surface 5. Put the equipment back to its location. 	<p><u>Condition (Given):</u> Rusty piece of metal, power wire brush</p> <p><u>Task (What):</u> Remove rust using power wire brush.</p> <p><u>Standard (How Well):</u> The surface of vehicle made free from rust and made it cleaned.</p>	<ul style="list-style-type: none"> ➤ Function of power wire brush ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Power wire brush

Safety:

- * Care should be taken while using tools and equipment

Task Analysis

Task No: 7 Remove rust using sand paper.

Time 6 hrs
Theory 1 hr
Practical 5 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Locate the area from where rust to be removed 2. Select the coarse type sand paper 3. Put the sand paper in a small wooden block 4. Apply sand paper over the area from where rust has to be removed 5. Clean the surface 	<p><u>Condition (Given):</u> Rusty piece of metal, Sand paper, wooden block</p> <p><u>Task (What):</u> Remove rust using sand paper.</p> <p><u>Standard (How Well):</u> The surface of vehicle made free from rust and made it cleaned.</p>	<ul style="list-style-type: none"> ➤ Types of sand paper and its application ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Wooden block, sand paper

Safety:

- * Care should be taken while using tools and equipment

Task Analysis

Task No: 8 Remove rust using chemicals.

Time 6 hrs
Theory 1 hr
Practical 5 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Locate the area from where rust to be removed 2. Apply the chemical (Rust inverter) over the rust 3. Rub the rust with coarse cloth 4. Clean the surface 5. Put the chemical back to its location. 	<p><u>Condition (Given):</u> Rusty piece of metal, Chemical</p> <p><u>Task (What):</u> Remove rust using chemicals.</p> <p><u>Standard (How Well):</u> The surface of vehicle made free from rust and made it cleaned.</p>	<ul style="list-style-type: none"> ➤ Different chemicals used in removing rust ➤ Properties of chemicals ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Chemical, coarse cloth

Safety:

- * Care should be taken while using chemical

Task Analysis

Task No: 9 Remove paint using chemical.

Time 6 hrs
Theory 1 hr
Practical 5 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Locate the area from where paint to be removed 2. Wet paint with chemical (Paint remover) 3. Remove the paint 4. Clean the surface 	<p><u>Condition (Given):</u> Painted metal, chemical</p> <p><u>Task (What):</u> Remove paint using chemical.</p> <p><u>Standard (How Well):</u> All paint removed from the surface and made it cleaned.</p>	<ul style="list-style-type: none"> ➤ Different chemicals used for removing paint ➤ Properties of chemical ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Care should be taken while using chemical

Task Analysis

Task No: 10 Remove oil and grease using chemical.

Time 6 hrs
Theory 1 hr
Practical 5 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Locate the area from where oil and grease to be removed 2. Clean the area with chemical 3. Clean the surface 	<p><u>Condition (Given):</u> Greasy piece of metal, chemical</p> <p><u>Task (What):</u> Remove oil and grease using chemical.</p> <p><u>Standard (How Well):</u> All grease removed from the surface and made it cleaned.</p>	<ul style="list-style-type: none"> ➤ Different chemicals used for removing oil and grease ➤ Properties of chemical ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Care should be taken while using chemical

Task Analysis

Task No: 11 Remove dampness of body surface.

Time 6 hrs
Theory 1 hr
Practical 5 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Collect tools, equipment and materials 2. Wash the vehicle 3. Blow high pressure air over the surface to dry the area 	<p><u>Condition (Given):</u> Damp vehicle</p> <p><u>Task (What):</u> Remove dampness of the body surface.</p> <p><u>Standard (How Well):</u> Damp area made completely dry.</p>	<ul style="list-style-type: none"> ➤ Concept of dampness ➤ Effect of dampness ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Air compressor and nozzle

Safety:

- * Care should be taken while using tools and equipment

Module 3

Body Surface Preparing

Description:

This module is designed to equip trainees with the knowledge and skills on auto body surface preparing technique in general and Removing of painting components and stickers, Detection of patches, Application of primer, Leveling of metal fillers, and Application of putty, surfacer, temporary protecting coat and body seal, Removing of rust, Removing of oil and grease and Removing of dampness of body surface in particular.

Objectives:

After completion of this module the trainees will be able:

1. To state the concept of preparing auto body surface
2. To apply primer on metal and plastic components
3. To level metal fillers in wet and dry conditions using sander
4. To apply putty, surfacer, protecting coat and body seal

Module Structure (M3)

S.N	Modules	Nature	Time (hours)	Full marks
1	M3: Body Surface Preparing	T+P	120	100

Task:

1. Remove stickers using hot water
2. Remove painting components
3. Detect body patches
4. Cover components
5. Apply primer (EP Surfacer)
6. Apply primer for aluminum and galvanized metal
7. Apply primer on plastic components
8. Apply metal filler
9. Level metal filler in wet condition using sander (NC painting)
10. Level metal filler in wet condition manually (NC painting)
11. Level metal filler in dry condition using sander
12. Apply putty
13. Apply surfacer (high filler)
14. Apply Check putty (only in case of NC paint)
15. Apply temporary protecting coat (In case of NC paint)
16. Apply body seal

Task Analysis

Task No: 1 Remove stickers using hot water.

Time 4 hrs
Theory 1 hr
Practical 3 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Boil water 2. Wet the sticker with hot water 3. Remove the stickers 4. Clean the surface 	<p><u>Condition (Given):</u> Painted metal, chemical</p> <p><u>Task (What):</u> Remove stickers using hot water.</p> <p><u>Standard (How Well):</u> All stickers removed from surface and made it cleaned.</p>	<ul style="list-style-type: none"> ➤ Properties of chemical/thinner ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Care should be taken while using hot water

Task Analysis

Task No: 2 Remove painting components.

Time 4 hrs
Theory 1 hr
Practical 3 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check the components in the painting surface 2. Remove only those components under which painting is to be done 3. Re fix those components back 	<p><u>Condition (Given):</u> Vehicle need to be painted</p> <p><u>Task (What):</u> Remove painting components.</p> <p><u>Standard (How Well):</u> Painting component removed according to manufacture's service manual</p>	<ul style="list-style-type: none"> ➤ Different components ➤ Components selection ➤ Purpose of components removing ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Care should be taken while removing locks of the components

Task Analysis

Task No: 3 Detect body patches.

Time 3 hrs
Theory 1 hr
Practical 2 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Observe the vehicle body panel from different angle 2. Marked the observed patches 3. Move the hand on the vehicle body surface and find out the patches 4. Mark the patches 	<p><u>Condition (Given):</u> Vehicle with patches</p> <p><u>Task (What):</u> Detect body patches.</p> <p><u>Standard (How Well):</u> Entire uneven surface marked.</p>	<ul style="list-style-type: none"> ➤ Painting technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Visual inspection has to be completed before sanding

Task Analysis

Task No: 4 Cover components.

Time 5 hrs
Theory 1 hr
Practical 4 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Check the components in the painting surface 2. Put a protecting cover to those accessories which can not be removed 3. Remove the protecting cover once the painting work is over	<p><u>Condition (Given):</u> Vehicle need to be painted</p> <p><u>Task (What):</u> Cover components.</p> <p><u>Standard (How Well):</u> Components covered until painting work over.</p>	<ul style="list-style-type: none"> ➤ Painting technology ➤ Protecting accessories ➤ Different protecting components ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Care should be taken not to go any paints in those covered components

Task Analysis

Task No: 5 Apply primer (EP Surfacer).

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check all the lines of the dented vehicle 2. Clean the surface 3. Dry the surface 4. Select the primer 5. Apply primer 6. Dry it 	<p><u>Condition (Given):</u> Dented vehicle, primer</p> <p><u>Task (What):</u> Apply primer (EP Surfacer).</p> <p><u>Standard (How Well):</u> Primer applied in the entire area where painting need to be carried out</p>	<ul style="list-style-type: none"> ➤ Painting technology ➤ Types of primer ➤ Specification of primer ➤ Function of primer ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Brush, painting gun

Safety:

- * Care should be taken while selecting primer
- * Applying should be even

Task Analysis

Task No: 6 Apply primer for aluminum and galvanized metal.

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Check all the lines of the dented vehicle 2. Clean the surface 3. Dry the surface 4. Apply metal filler 5. Apply epoxy primer 6. Dry it	<p><u>Condition (Given):</u> Dented vehicle, primer</p> <p><u>Task (What):</u> Apply primer for aluminum and galvanized metal.</p> <p><u>Standard (How Well):</u> Primer applied in the entire area where painting need to be carried out</p>	<ul style="list-style-type: none"> ➤ Painting technology ➤ Specification of primer ➤ Function of primer ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Brush, painting gun

Safety:

- * Care should be taken while selecting primer
- * Applying should be even

Task Analysis

Task No: 7 Apply primer on plastic components.

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Wash the components with soapy water 2. Dry it 3. Apply anti static degreaser with wipe on and wipe off process 4. Apply plastic primer	<p><u>Condition (Given):</u> Plastic component, primer</p> <p><u>Task (What):</u> Apply primer on plastic components.</p> <p><u>Standard (How Well):</u> Primer applied in the entire area where painting needs to be carried out.</p>	<ul style="list-style-type: none"> ➤ Painting technology ➤ Specification of primer ➤ Function of primer ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun; Scotch pad

Safety:

- * Care should be taken while selecting primer
- * Applying should be even

Task Analysis

Task No: 8 Apply metal filler.

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check all the lines of the dented vehicle 2. Clean the surface 3. Dry the surface 4. Apply metal filler (Bombay putty) where surface is not even or smooth. 5. Perform sanding to level it 6. Apply primer 7. Allow it to dry <p>Note: If dent is very big, rather than putting the metal filler, denting is recommended</p>	<p><u>Condition (Given):</u> Dented vehicle, metal filler</p> <p><u>Task (What):</u> Apply metal filler.</p> <p><u>Standard (How Well):</u> Metal filler applied following procedure.</p>	<ul style="list-style-type: none"> ➤ Painting technology ➤ Types of metal fillers ➤ Specification of metal filler ➤ Function of primer ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Metal plate to apply putty, sander, emery paper

Safety:

- * Putty need to be dried before any further processing

Task Analysis

Task No: 9 Level metal filler in wet condition using sander (NC painting).

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Apply metal filler (Bombay putty) where surface is not even or smooth. 2. Plug in sander 3. Perform sanding on the uneven metal filler putting water on it 4. Clean the surface 5. Allow it to dry	<p><u>Condition (Given):</u> Dented vehicle, Sander</p> <p><u>Task (What):</u> Level metal filler in wet condition using sander (NC painting).</p> <p><u>Standard (How Well):</u> Metal filler leveled and made the surface even.</p>	<ul style="list-style-type: none"> ➤ Painting technology ➤ Types of metal fillers ➤ Specification of metal filler ➤ Function of sander ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Sander

Safety:

- * Metal filler need to be dried before any further processing
- * Care should be taken while operating sander

Task Analysis

Task No: 10 Level metal filler in wet condition manually (NC painting).

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Apply metal filler (Bombay putty) where surface is not even or smooth. 2. Select emery paper 3. Perform sanding on the uneven metal filler putting water on it 4. Clean the surface 5. Allow it to dry 	<p><u>Condition (Given):</u> Dented vehicle, Emery paper</p> <p><u>Task (What):</u> Level metal filler in wet condition manually (NC painting).</p> <p><u>Standard (How Well):</u> Metal filler leveled and made the surface even.</p>	<ul style="list-style-type: none"> ➤ Painting technology ➤ Specification of metal filler ➤ Function of emery paper ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Sander

Safety:

- * Metal filler need to be dried before any further processing
- * Care should be taken while sanding

Task Analysis

Task No: 11 Level metal filler in dry condition using sander.

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Apply 2k putty 2. Plug in sander 3. Perform sanding on the uneven metal filler in dry condition 4. Clean the surface 5. Allow it to dry	<p><u>Condition (Given):</u> Dented vehicle, Sander</p> <p><u>Task (What):</u> Level metal filler in dry condition using sander.</p> <p><u>Standard (How Well):</u> Metal filler leveled and made the surface even.</p>	<ul style="list-style-type: none"> ➤ Painting technology ➤ Specification of metal filler ➤ Function of sander ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Sander

Safety:

- * Metal filler need to be dried before any further processing
- * Care should be taken while operating sander

Task Analysis

Task No: 12 Apply putty.

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check all the lines of the dented vehicle 2. Clean the surface 3. Dry the surface 4. Apply metal filler 5. Apply primer 6. Select putty 7. Mix 2 gm of hardener in 100 gm of putty 8. Apply putty 9. Allow it to dry 10. Level it by dry sanding (sander/ emery paper) 	<p><u>Condition (Given):</u> Dented vehicle, putty, hardener</p> <p><u>Task (What):</u> Apply putty.</p> <p><u>Standard (How Well):</u> Putty applied in entire area where surface is uneven.</p>	<ul style="list-style-type: none"> ➤ Specification of putty ➤ Function of putty ➤ Specification of hardener ➤ Function of hardener ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Spreader to apply putty, sander, emery paper

Safety:

- * Care should be taken while selecting primer
- * Do not mix more hardener as it may crack the putty later
- * Applying should be even

Task Analysis

Task No: 13 Apply surfacer (high filler).

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check all the lines of the dented vehicle 2. Clean the surface 3. Dry the surface 4. Apply metal filler 5. Apply primer 6. Apply putty 7. Prepare surfacer by mixing it with hardener at the ration of 4:1 8. select spray gun of 2 mm nozzle 9. Apply surfacer 10. Allow it to dry 11. Perform sanding with 800 number emery paper for metallic painting and 600 number for solid painting 	<p><u>Condition (Given):</u> Dented vehicle, surfacer</p> <p><u>Task (What):</u> Apply surfacer (high filler).</p> <p><u>Standard (How Well):</u> Surfacer sprayed across the place where painting needs to be carried out.</p>	<ul style="list-style-type: none"> ➤ Types of surfacer commonly available ➤ Specification of surfacer ➤ Function of surfacer ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun

Safety:

- * Use paint booth safety kit
- * Do not mix hardener more than recommended
- * Spraying area should be dust free

Task Analysis

Task No: 14 Apply Check putty (only in case of NC paint).

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check all the lines of the dented vehicle 2. Clean the surface 3. Dry the surface 4. Apply metal filler 5. Apply primer 6. Apply putty 7. Apply surfacer 8. Check the even ness of the surface and apply check putty if finds un even surface 9. Allow it to dry 10. Level it with emery paper 	<p><u>Condition (Given):</u> Dented vehicle, putty</p> <p><u>Task (What):</u> Apply Check putty (only in case of NC paint).</p> <p><u>Standard (How Well):</u> Check putty applied over uneven surface following application procedure. Surface of dented vehicle made even.</p>	<ul style="list-style-type: none"> ➤ Different commonly available check putty ➤ Specification of putty ➤ Function of putty ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Metal plate to apply putty, sander, emery paper

Safety:

- * Care should be taken while selecting putty
- * Applying should be even

Task Analysis

Task No: 15 Apply temporary protecting coat (In case of NC paint).

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check all the lines of the dented vehicle 2. Clean the surface 3. Dry the surface 4. Apply metal filler 5. Apply primer 6. Apply putty 7. Apply surfacer 8. Spray any excessive paint lightly in damage area 	<p><u>Condition (Given):</u> Dented vehicle, any wastage paint</p> <p><u>Task (What):</u> Apply temporary protecting coat (In case of NC paint).</p> <p><u>Standard (How Well):</u> Temporary protecting coat applied following procedure over the surface of dented vehicle. Surface prepared for final paint.</p>	<ul style="list-style-type: none"> ➤ Introduction of temporary protecting coat ➤ Materials usage for temporary coating ➤ Paint technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, painting booth

Safety:

- * Temporary protecting coat should be of same type paint
- * Spraying should be lightly

Task Analysis

Task No: 16 Apply body seal.

Time 7 hrs
Theory 1 hr
Practical 6 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Check the area where sealant need to apply 2. Select sealant 3. Apply sealant 4. Allow it to dry 	<p><u>Condition (Given):</u> Dented vehicle, Sealant</p> <p><u>Task (What):</u> Apply body seal.</p> <p><u>Standard (How Well):</u> Body sealant applied. No gap left.</p>	<ul style="list-style-type: none"> ➤ Specification of sealant ➤ Function of sealant ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Care should be taken while selecting sealant
- * Applying should be even

Module 4

Body Painting

Description:

This module is designed to equip trainees with the knowledge and skills on auto body painting technique in general and Adjustment of paint viscosity, Application of paint, solid color, under coat, metallic colour, fade out paints, anti static degreaser, Painting of bumper, Application of wax, Dashboard polishing, Body stickers pasting and Vehicle washing in particular.

Objectives:

After completion of this module the trainees will be able:

1. To state the concept of auto body painting technology
2. To adjust paint viscosity for solid and metallic colour
3. To apply under coat, paint with retarder, solid colour paint, metallic color paint, fade out paint and anti static degreaser
4. To paint plastic bumper with solid and mat finished solid paint
5. To apply metallic color and mat finished paint on plastic bumper
6. To Carry out dashboard polishing
7. To apply wax with sponge in order to cover the body surface
8. To perform vehicle washing

Module Structure (M4)

S.N	Module	Nature	Time (hours)	Full marks
1	M4: Body Painting	T+P	170	125

Tasks:

1. Select paint for use
2. Match the color from base tint
3. Adjust paint viscosity for solid color
4. Adjust paint viscosity for NC solid color
5. Adjust paint viscosity for NC metallic color
6. Adjust paint viscosity of metallic color
7. Mask body parts
8. Select painting gun
9. Apply under coat (in case of NC paint)
10. Apply paint with retarder (in case of NC paint)
11. Apply solid color paint
12. Apply solid color NC type paint
13. Remove dust from a painted surface
14. Apply metallic color paint
15. Apply metallic color NC type paint
16. Apply fade out paint on solid color
17. Apply fade out paint on metallic color
18. Apply anti static degreaser in plastic surface
19. Paint bumper (plastic) with solid color
20. Paint bumper (plastic) with mat finished solid paint
21. Apply metallic color paint on bumper (plastic)
22. Apply metallic color mat finished paint on bumper (plastic)

23. Remove scratches by using rubbing compound
24. Polish dashboard
25. Apply wax
26. Paste body stickers
27. Paint tyre
28. Clean upholstery
29. Wash vehicle
30. Perform rubbing compound cutting by machine

Task Analysis

Task No: 1 Select paint for use.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Select the part of the surface to be painted 2. Select 2K paint (PU) for body painting 3. Select under body paint for under body painting 	<p><u>Condition (Given):</u> Different types of paint</p> <p><u>Task (What):</u> Select paint for use.</p> <p><u>Standard (How Well):</u> Different paint selected according to the application</p>	<ul style="list-style-type: none"> ➤ Types of paint ➤ Properties of PU paints ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Care should be taken while selecting paint

Task Analysis

Task No: 2 Match the color from base tint.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. See the color code of the vehicle 2. Match the color code with the paint manufacturers color code 3. Find out the mixing quantity of base tints from the paint manufacture's color mixing manual 4. Weigh the tint according to the manual and mix it together. 5. Put a spot in an area where original paint is not damaged on the vehicle. Putting a spot should in such area which needs to be painted for color uniformity. 6. Adjust/tune up the color which is made may not exactly match with the original color due to aging and fading. 	<p><u>Condition (Given):</u> Different types of base tint, Vehicle which need to be painted, Manufacture's color mixing manual, Manufacturer's color code</p> <p><u>Task (What):</u> Match the color from base tint.</p> <p><u>Standard (How Well):</u> Color matched from base tint following the manufacturer's color mixing manual and manufacture's color code. Spots put into a vehicle with mixed paint, without differentiating with bare eye.</p>	<ul style="list-style-type: none"> ➤ Types of paint ➤ Color selection ➤ Weighing technique ➤ Color mixing technique ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Safety:

- * Color should be exactly match
- * Care should be taken while handling hazardous material
- * Weighing has to be precise

Task Analysis

Task No: 3 Adjust paint viscosity for solid color.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Prepare the color which will exactly match with the vehicle color 2. Mix the paint with harder and sealed thinner with the ratio of 2: 1: 0.6 so that it can easily be sprayed with the help of painting gun.	<p><u>Condition (Given):</u> Paint, Thinner, vehicle need to be painted</p> <p><u>Task (What):</u> Adjust paint viscosity for solid color.</p> <p><u>Standard (How Well):</u> Prepared color matched with vehicle color. The paint mixed with harder and sealed thinner. Paint viscosity adjusted.</p>	<ul style="list-style-type: none"> ➤ Concept of viscosity ➤ Properties of thinner ➤ Principle of operation of painting gun ➤ Types of painting gun ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Mixing rod, painting gun, measuring glass

Safety:

- * Care should be taken while selecting paint
- * Care should be taken while handling hazardous material
- * Measuring should be precise
- * Paint should not flow from the painted surface

Task Analysis

Task No: 4 Adjust paint viscosity for NC solid color.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Prepare the color which will exactly match with the vehicle color 2. Mix the paint with sealed thinner with the ratio of 1: 1.5 so that it can easily be sprayed with the help of painting gun. 3. For the final paint the above ratio should be 1:3.	<p><u>Condition (Given):</u> Paint, Thinner, vehicle need to be painted</p> <p><u>Task (What):</u> Adjust paint viscosity for NC solid color.</p> <p><u>Standard (How Well):</u> Prepared color matched with vehicle color. The paint mixed with sealed thinner. Paint viscosity adjusted.</p>	<ul style="list-style-type: none"> ➤ Concept of viscosity ➤ Properties of thinner ➤ Principle of operation of painting gun ➤ Types of painting gun ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Mixing rod, painting gun, measuring glass

Safety:

- * Care should be taken while selecting paint
- * Care should be taken while handling hazardous material
- * Measuring should be precise
- * Paint should not flow from the painted surface

Task Analysis

Task No: 5 Adjust paint viscosity for NC metallic color.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Prepare the color which will exactly match with the vehicle color 2. Mix the paint with sealed thinner with the ratio of 1: 1 so that it can easily be sprayed with the help of painting gun. 3. For the final paint the above ratio should be 1:3. 	<p><u>Condition (Given):</u> Paint, Thinner, vehicle need to be painted</p> <p><u>Task (What):</u> Adjust paint viscosity for NC metallic color.</p> <p><u>Standard (How Well):</u> Prepared color matched with vehicle color. The paint mixed with sealed thinner. Paint viscosity adjusted.</p>	<ul style="list-style-type: none"> ➤ Concept of viscosity ➤ Properties of thinner ➤ Principle of operation of painting gun ➤ Types of painting gun ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Mixing rod, painting gun, measuring glass

Safety:

- * Care should be taken while selecting paint
- * Care should be taken while handling hazardous material
- * Measuring should be precise
- * Paint should not flow from the painted surface

Task Analysis

Task No: 6 Adjust paint viscosity of metallic color.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Prepare the color which will exactly match with the vehicle color 2. Mix the paint with harder at the ratio of 2: 1 so that it can easily be sprayed with the help of painting gun.	<p><u>Condition (Given):</u> Paint, Thinner, vehicle need to be painted</p> <p><u>Task (What):</u> Adjust paint viscosity of metallic color.</p> <p><u>Standard (How Well):</u> Prepared color matched with vehicle color. The paint mixed with sealed harder Paint viscosity adjusted.</p>	<ul style="list-style-type: none"> ➤ Concept of viscosity ➤ Properties of thinner ➤ Principle of operation of painting gun ➤ Types of painting gun ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Mixing rod, painting gun, measuring glass

Safety:

- * Care should be taken while selecting paint
- * Care should be taken while handling hazardous material
- * Measuring should be precise
- * Paint should not flow from the painted surface

Task Analysis

Task No: 7 Mask body parts.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Select the painting area 2. Take a paper and mask all other part of the body (for big area plastic can also be used) 3. Apply paints 4. Take out masking 	<p><u>Condition (Given):</u> Vehicle to be paint, paper</p> <p><u>Task (What):</u> Mask body parts</p> <p><u>Standard (How Well):</u> Body parts masked in such way that paint that no paint reached in those masked area.</p>	<ul style="list-style-type: none"> ➤ Paint technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Black tape, paper

Safety:

- * Taping should be proper

Task Analysis

Task No: 8 Select painting gun.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
1. Select the painting gun according to the application 2. For the body painting with 2K, use low pressure high volume painting gun 3. For under body coat, different gun need to be used	<p><u>Condition (Given):</u> Different types of painting gun</p> <p><u>Task (What):</u> Select painting gun</p> <p><u>Standard (How Well):</u> Different painting guns for body painting and under body coat selected.</p>	<ul style="list-style-type: none"> ➤ Principle of operation of painting gun ➤ Types of painting gun and its application ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun

Safety:

- * Care should be taken while selecting painting gun

Task Analysis

Task No: 9 Apply under coat (in case of NC paint).

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Mark the surface where painting need to be done 3. Prepare the under coat paint 4. Take the vehicle inside the painting booth 5. Use paint booth safety kit 6. Apply under coat uniformly to cover surface which need to be painted 7. Dry it 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Apply under coat (in case of NC paint).</p> <p><u>Standard (How Well):</u> Under coat prepared following color code. Uniform spraying maintained.</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Usage of safety kit ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, paint booth

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual

Task Analysis

Task No: 10 Apply paint with retarder (In case of NC paint).

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Mark the surface where painting need to be done 3. Prepare the under coat paint 4. Take the vehicle inside the painting booth 5. Use paint booth safety kit 6. Apply under coat 7. Prepare a paint with retarder at the ratio of 1:0.25 8. Apply paint 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Apply under coat (in case of NC paint).</p> <p><u>Standard (How Well):</u> Under coat prepared following color code. Uniform spraying maintained.</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Properties of retarder ➤ Usage of safety kit ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, paint booth, paints

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual

Task Analysis

Task No: 11 Apply solid color paint.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Mark the surface where painting need to be done 3. Apply primer (EP surfacer) 4. Apply putty and perform dry sanding to level it 5. Apply surfacer and perform dry sanding with 600 number emery paper 6. Prepare the paint and mix with hardener and thinner 7. Take the vehicle inside the painting booth 8. Use paint booth safety kit 9. Operate blower 10. Apply 2 coat uniformly to cover surface which need to be painted 11. Dry it by heating the painting booth 12. Maintain the temperature of about 60 to 70 degree 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Apply solid color paint</p> <p><u>Standard (How Well):</u> Solid color paint applied in such way that no bubble seen and no paint flowed from the painted surface.</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Usage of safety kit ➤ Painting technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, painting booth, emery paper, paints

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual
- * Bubble should not be seen and paint should not flow

Task Analysis

Task No: 12 Apply solid color NC type paint.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Mark the surface where painting need to be done 3. Apply NC primer 4. Apply putty and perform wet sanding to level it 5. Apply surfacer, apply check putty and perform dry sanding 6. Apply undercoat 7. Prepare the paint and mix thinner 8. Take the vehicle inside the painting booth 9. Use paint booth safety kit 10. Operate blower 11. Apply 2 coat uniformly to cover surface which need to be painted 12. Apply final coat for paint 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Apply solid color NC type paint.</p> <p><u>Standard (How Well):</u> Solid color paint applied in such way that no bubble seen and no paint flowed from the painted surface</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Usage of safety kit ➤ Painting technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, painting booth, putty, paints

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual
- * Bubble should not be seen and paint should not flow

Task Analysis

Task No: 13 Remove dust from painted surface.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Apply rubbing polish over the surface where the dust is 3. Rub uniformly with satin cloth to remove it. 	<p><u>Condition (Given):</u> Satin cloth and the vehicle to be rubbing polish</p> <p><u>Task (What):</u> Remove dust from painted surface.</p> <p><u>Standard (How Well):</u> Dust removed without spoiling color of the vehicle.</p>	<ul style="list-style-type: none"> ➤ Properties of rubbing polish ➤ Usage of rubbing polish ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Satin cloth

Safety:

- * Care should be taken while rubbing the polish as it may spoil the color of vehicle

Task Analysis

Task No: 14 Apply metallic color paint.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Mark the surface where painting need to be done 3. Apply primer (EP surfacer) 4. Apply putty and perform dry sanding to level it 5. Apply surfacer and perform dry sanding with 800 number emery paper 6. Prepare the paint and mix with hardener 7. Take the vehicle inside the painting booth 8. Use paint booth safety kit 9. Operate blower 10. Apply 2 coat uniformly to cover surface which need to be painted 11. Allow it to dry for about 15 minute 12. Prepare plastic coat by mixing clear with hardener and thinner at the ratio of 2:1:0.6 13. Apply 2 coat uniformly to cover surface which need to be painted 14. Dry it by heating the painting booth. 15. Maintain the temperature of about 60 to 70 degree. 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Apply metallic color paint.</p> <p><u>Standard (How Well):</u> Metallic color paint applied in such way that no bubble seen and no paint flowed from the painted surface.</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Usage of safety kit ➤ Painting technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, painting booth, paints

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual
- * Bubble should not be seen and paint should not flow

Task Analysis

Task No: 15 Apply metallic color NC type paint.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Mark the surface where painting need to be done 3. Apply NC primer 4. Apply putty and perform wet sanding to level it 5. Apply surfacer, apply check putty and perform dry sanding 6. Apply undercoat 7. Prepare the paint and mix thinner 8. Take the vehicle inside the painting booth 9. Use paint booth safety kit 10. Operate blower 11. Apply 2 coat uniformly to cover surface which need to be painted 12. Apply final coat for paint 13. Apply clear coat 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Apply metallic color NC type paint.</p> <p><u>Standard (How Well):</u> Metallic color paint applied in such way that no bubble seen and no paint flowed from the painted surface.</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Usage of safety kit ➤ Painting technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, painting booth, paints

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual
- * Bubble should not be seen and paint should not flow

Task Analysis

Task No: 16 Apply fade out paint on solid color.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Mark the surface where painting need to be done 3. Apply primer (EP surfacer) 4. Apply putty and perform dry sanding to level it 5. Apply surfacer on damage area only and perform dry sanding covering about 20% more area of damage with 2000 number emery paper 6. Prepare the paint and mix with hardener and thinner 7. Take the vehicle inside the painting booth 8. Use paint booth safety kit 9. Operate blower 10. Apply 1st coat uniformly to cover damage surface 11. Apply 2nd coat by spraying lightly to cover entire prepared area (20% more than the damage area) 12. Dry it by heating the painting booth. Maintain the temperature of about 60 to 70 degree. 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Apply fade out paint on solid color.</p> <p><u>Standard (How Well):</u> Fade out paint applied matching with original color. No differentiation marked by naked eye on solid color.</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Usage of safety kit ➤ Painting technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, painting booth, emery paper, paints

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual
- * New painting should not be able to differentiate with naked eye

Task Analysis

Task No: 17 Apply fade out paint on metallic color.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Mark the surface where painting need to be done 3. Apply primer (EP surfacer) 4. Apply putty and perform dry sanding to level it 5. Apply surfacer on damage area only and perform dry sanding covering about 20% more area of damage with 2000 number emery paper 6. Prepare the paint and mix with hardener 7. Take the vehicle inside the painting booth 8. Use paint booth safety kit 9. Operate blower 10. Apply 1st coat uniformly to cover damage surface 11. Apply 2nd coat by spraying lightly to cover entire prepared area (20% more than the damage area) 12. Prepare the plastic coat by mixing hardener and thinner 13. Apply first coat in damage surface 14. Apply 2nd coat covering about 5% more than the damaged surface 15. Dry it by heating the painting booth. Maintain the temperature of about 60 to 70 degree. 16. Apply join thinner (SR thinner) to merge new and old plastic coat 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Apply fade out paint on metallic color.</p> <p><u>Standard (How Well):</u> Fade out paint applied matching with original color. No differentiation marked by naked eye on metallic color New painting should not be able to differentiate with naked eye</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Usage of safety kit ➤ Painting technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, painting booth, emery paper, paints

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual
- * New painting should not be able to differentiate with naked eye

Task Analysis

Task No: 18 Apply anti static degreaser in plastic surface.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean the surface with soapy water 2. Dry it 3. Apply anti static degreaser in such a way one hand will apply the degreaser and other hand will wipe it simultaneously (Called wipe on and wipe off process). 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Apply anti static degreaser in plastic surface</p> <p><u>Standard (How Well):</u> Anti static degreaser applied and wiped simultaneously.</p>	<ul style="list-style-type: none"> ➤ Properties and usage of anti static degreaser ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, painting booth, paints

Safety:

- * Follow safety instruction

Task Analysis

Task No: 19 Paint bumper (plastic) with solid color.

Time 10 hrs

Theory 1 hrs

Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean bumper with hot soapy water and dry it 2. Mark the surface where painting need to be done 3. Apply anti static greaser (wipe on and wipe off process) 4. Apply plastic primer 5. Apply putty and perform dry sanding to level it 6. Apply surfacer 7. Prepare the paint and mix with hardener 8. Take the vehicle inside the painting booth 9. Use paint booth safety kit 10. Operate blower 11. Apply 2 coat uniformly to cover damage surface 12. Dry it by heating the painting booth. Maintain the temperature of about 60 to 70 degree. 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Paint bumper (plastic) with solid color.</p> <p><u>Standard (How Well):</u> Solid color applied in such way that no bubble seen and no paint flowed from the painted surface.</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Usage of safety kit ➤ Painting technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, painting booth, paints

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual
- * Bubble should not be seen and paint should not flow

Task Analysis

Task No: 20 Paint bumper (plastic) with mat finished solid paint.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean bumper with hot soapy water and dry it 2. Mark the surface where painting need to be done 3. Apply anti static greaser (wipe on and wipe off process) 4. Apply plastic primer 5. Apply putty and perform dry sanding to level it 6. Apply surfacer 7. Prepare the paint and mix with mat finished chemical at the ratio of 0.4:0.6 (paint to chemical) 8. Take the vehicle inside the painting booth 9. Use paint booth safety kit 10. Operate blower 11. Apply 2 coat uniformly to cover damage surface 12. Dry it by heating the painting booth. Maintain the temperature of about 60 to 70 degree. 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Paint bumper (plastic) with mat finished solid paint.</p> <p><u>Standard (How Well):</u> Mat finished solid paint applied in such way that no bubble seen and no paint flowed from the painted surface.</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Usage of safety kit ➤ Painting technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, painting booth, paints

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual
- * Bubble should not be seen and paint should not flow

Task Analysis

Task No: 21 Apply metallic color paint on bumper (plastic).

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean bumper with hot soapy water and dry it 2. Apply plastic primer 3. apply anti static degreaser (wipe on and wipe off process) 4. Apply putty and perform dry sanding to level it 5. Apply surfacer and perform dry sanding with 800 number emery paper 6. Prepare the paint and mix with hardener 7. Take the vehicle inside the painting booth 8. Use paint booth safety kit 9. Operate blower 10. Apply 2 coat uniformly to cover surface which need to be painted 11. Allow it to dry for about 15 minute 12. Prepare plastic coat by mixing clear with hardener and thinner at the ratio of 2:1:0.6 13. Apply 2 coat uniformly to cover surface which need to be painted 14. Dry it by heating the painting booth. Maintain the temperature of about 60 to 70 degree. 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Apply metallic color mat finished paint on bumper (plastic).</p> <p><u>Standard (How Well):</u> Metallic color paint applied in such way that no bubble seen and no paint flowed from the painted surface.</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Usage of safety kit ➤ Painting technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, painting booth, paints

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual
- * Bubble should not be seen and paint should not flow

Task Analysis

Task No: 22 Apply metallic color mat finished paint on bumper (plastic).

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean bumper with hot soapy water and dry it 2. Apply plastic primer 3. apply anti static degreaser (wipe on and wipe off process) 4. Apply putty and perform dry sanding to level it 5. Apply surfacer and perform dry sanding with 800 number emery paper 6. Prepare the paint and mix with hardener 7. Take the vehicle inside the painting booth 8. Use paint booth safety kit 9. Operate blower 10. Apply 2 coat uniformly to cover surface which need to be painted 11. Allow it to dry for about 15 minute 12. Prepare mat finished plastic coat by mixing plastic coat with mat finished chemical at the ratio of 0.4:0.6. 13. Apply 2 coat uniformly to cover surface which need to be painted 14. Dry it by heating the painting booth. Maintain the temperature of about 60 to 70 degree. 	<p><u>Condition (Given):</u> Painting gun and the vehicle to be painted</p> <p><u>Task (What):</u> Apply metallic color mat finished paint on bumper (plastic).</p> <p><u>Standard (How Well):</u> Metallic color mat finished paint applied in such way that no bubble seen and no paint flowed from the painted surface</p>	<ul style="list-style-type: none"> ➤ Principal of operation of painting booth ➤ Usage of safety kit ➤ Painting technology ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Painting gun, painting booth, paints

Safety:

- * Properly clean the gun after use
- * Air pressure in the gun should be according to the manual
- * Bubble should not be seen and paint should not flow

Task Analysis

Task No: 23 Remove scratches by using rubbing compound.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Observe the scratch and confirm whether it has gone inside the outer layer of the paint 3. Mark the surface where rubbing polish need to be done 4. Apply rubbing polish in to those area 5. Rub uniformly with satin cloth over the scratch to remove it. 	<p><u>Condition (Given):</u> Satin cloth and the vehicle to be rubbing polish</p> <p><u>Task (What):</u> Remove scratches by using rubbing compound.</p> <p><u>Standard (How Well):</u> Scratch removed without spoiling color of the vehicle.</p>	<ul style="list-style-type: none"> ➤ Properties of rubbing polish ➤ Usage of rubbing polish ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Satin cloth

Safety:

- * Care should be taken while rubbing the polish as it may spoil the color of vehicle

Task Analysis

Task No: 24 Polish dashboard.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Clean the dash board with dry cloth 3. Apply dashboard polish with sponge 	<p><u>Condition (Given):</u> vehicle to be polished</p> <p><u>Task (What):</u> Polish dashboard.</p> <p><u>Standard (How Well):</u> Dashboard glazed.</p>	<ul style="list-style-type: none"> ➤ Properties of dash board polish and its usage ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Sponge, dashboard polish

Safety:

- * Properly clean the dash board

Task Analysis

Task No: 25 Apply wax.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Apply wax with sponge to cover the surface 3. Allow it to dry 4. Wipe with satin cloth 	<p><u>Condition (Given):</u> Vehicle to be waxed</p> <p><u>Task (What):</u> Apply wax.</p> <p><u>Standard (How Well):</u> Wax applied uniformly in such way that no Rubbing mark seen in the surface.</p>	<ul style="list-style-type: none"> ➤ Properties of wax and its Usages ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Sponge, wax

Safety:

- * Properly clean surface
- * Rubbing mark should not be seen in the surface

Task Analysis

Task No: 26 Paste body stickers.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
5. Clean and dry the vehicle 6. Take a measurement of pasting points from different points 7. Remove sticker cover from glue side 8. Paste sticker	<p><u>Condition (Given):</u> Painted vehicle, sticker</p> <p><u>Task (What):</u> Paste body stickers.</p> <p><u>Standard (How Well):</u> Body stickers pasted in such way that no air bubble seen in the stickers.</p>	<ul style="list-style-type: none"> ➤ Pasting technique of stickers ➤ Properties of pasting glue ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Measuring tools

Safety:

- * Properly clean surface

Task Analysis

Task No: 27 Paint tyre.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the tyres 2. Apply rubber paint on the tyres 3. Allow it to dry 	<p><u>Condition (Given):</u> Tyre to be painted</p> <p><u>Task (What):</u> Paint tyre.</p> <p><u>Standard (How Well):</u> Rubber paint applied on the tyres following color code.</p>	<ul style="list-style-type: none"> ➤ Properties of rubber paint and its usages ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Brush

Safety:

- * Clean surface properly
- * Apply paint uniformly

Task Analysis

Task No: 28 Clean upholstery.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Put the detergent in the upholstery cleaning machine 3. Plug in electricity 4. Spray the detergent into the upholstery 5. Vacuum the water from the upholstery by moving the sucking end of the cleaning machine 6. Allow it to dry 	<p><u>Condition (Given):</u> Upholstery to be cleaned; detergent</p> <p><u>Task (What):</u> Handle upholstery cleaning machine Clean upholstery</p> <p><u>Standard (How Well):</u> Upholstery cleaning machine handled. All the stain removed.</p>	<ul style="list-style-type: none"> ➤ Principal of operation of upholstery cleaning machine and usage ➤ Properties of detergent ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Upholstery cleaning machine

Safety:

- * Care should be taken while using electricity
- * Do not operate machine for very long time continuously in order to avoid its breakage

Task Analysis

Task No: 29 Wash vehicle.

Time 2 1/2 hrs
Theory 1/2 hrs
Practical 2 hrs

Steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Park the vehicle in service bay. 2. Apply hand brake or place choke to the wheel. 3. Disconnect battery negative terminal. 4. Remove floor mats from the vehicle. 5. Clean the interior of the vehicle. 6. Clean the interior floor with vacuum cleaner. 7. Lift the hydraulic ramp as required height. 8. Adjust the pressure of water spray nozzle in water pump or hosepipe. 9. Wash the vehicle by using spray nozzle. 10. Clean/ wash the floor mats and mattress. 11. Wipe up the body of the vehicle with soft cloth and liquid soap or detergent. 12. Wash/Remove dry soil or mud under the chassis. 13. Wash the vehicle thoroughly. 14. Wipe the wet water with soft cloth. 15. Wax the dashboard interior. 	<p><u>Condition (Given):</u> A vehicle in washing bay.</p> <p><u>Task (What):</u> Wash the vehicle.</p> <p><u>Standard (How Well):</u> Vehicle washed and waxed according to performance guide.</p>	<ul style="list-style-type: none"> ➤ Function of vacuum cleaner ➤ Purpose, importance and types of wax ➤ Liquid soap and detergent usage in washing ➤ Handling of vacuum cleaner ➤ Handling of hydraulic ramp or washing bay ➤ Procedure ➤ Safety precautions

Required tools/equipment: Water pump, washing bay, Vacuum cleaner.

Safety:

- * Observe all safety rules while lifting and working under vehicle.
- * Observe great care when using chemical solvent to cleaning components.
- * Use care when using steam and chemical fumes to avoid eye and skin injury.
- * Use care when working with mechanic's tools to avoid injury.
- * Maintain clean and orderly work area.

Task Analysis

Task No: 30 Perform rubbing compound cutting by machine.

Time 10 hrs
Theory 1 hrs
Practical 9 hrs

Performance steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> 1. Clean and dry the vehicle 2. Plug in compounding cutting machine 3. Apply rubbing compound on the surface 4. Apply tools smoothly over the surface 	<p><u>Condition (Given):</u> Vehicle and compounding cutting machine</p> <p><u>Task (What):</u> Perform rubbing compound cutting by machine.</p> <p><u>Standard (How Well):</u> All scratches removed from the surface.</p>	<ul style="list-style-type: none"> ➤ Principle of operation of the machine ➤ Properties of rubbing compound ➤ Procedure ➤ Safety precautions

Required tools/equipment:

Rubbing compound cutting machine

Safety:

- * Care should be taken while using electricity
- * Do not operate machine for very long time continuously in order to avoid its breakage

Part: B Common Module					
Description: This module consists of skills and knowledge related to applied math, occupational health and safety, HIV/AIDS, first aid, communication, and small business management applicable in the related job performances.					
Objectives: <ul style="list-style-type: none"> • Carry out simple mathematical calculations related to the occupation • Be familiar with hazards related to this occupation • Apply preventive measures for occupational health and safety • Apply first aid measures • Apply preventive measures for HIV/AIDS • Communicate with others • Apply skills of small business management 					
Sub modules: <ol style="list-style-type: none"> 1. Applied math 2. Occupational health and safety 3. First aid 4. HIV/AIDS 5. Communication 6. Small business management 					
Sub module:1:Applied Mathematics					
Description: It consists of skills and knowledge related to mathematical calculations applicable in the related occupational performances.					
Objective: <ul style="list-style-type: none"> • To carry out simple mathematical calculations that must be done for the effective performance in the occupational job. 					
Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks/skills/steps together with their related technical knowledge:					
Th.(4 hrs) + Pr.(16hrs) = Tot.(20 hrs)				Time(hrs)	
SN	Tasks or skills/ steps	Related technical knowledge	Th.	Pr.	Tot.
1.	Carry out simple addition applicable in job situation	<u>Addition:</u> <ul style="list-style-type: none"> ➤ Concept ➤ Simple calculations ➤ Application in the occupation 	0.2	0.8	1
2.	Carry out simple subtraction applicable in job situation	<u>Subtraction:</u> <ul style="list-style-type: none"> ➤ Concept ➤ Simple calculations ➤ Application in the occupation 	0.2	0.8	1
3.	Carry out simple multiplication applicable in job situation	<u>Multiplication</u> <ul style="list-style-type: none"> ➤ Concept ➤ Simple calculations ➤ Application in the occupation 	0.2	0.8	1
4.	Carry out simple division applicable in job situation	<u>Division:</u> <ul style="list-style-type: none"> ➤ Concept ➤ Simple calculations 	0.2	0.8	1

		➤ Application in the occupation			
5.	Carry out measurements	<u>Measurement:</u> ➤ Concept ➤ Application in the occupation	0.2	0.8	1
6.	Convert units of measurement	<u>Units of measurement:</u> ➤ Concept ➤ Units of measurement ➤ Unit conversion ➤ application	0.2	0.8	1
7.	Convert units of measuring temperature	<u>Units of measuring temperature:</u> ➤ Concept ➤ Units of temperature measurement ➤ Unit conversion ➤ application	0.2	0.8	1
8.	Calculate area	<u>Area:</u> ➤ Concept ➤ Formula ➤ Calculation ➤ Application	0.2	0.8	1
9.	Calculate volume	<u>Volume:</u> ➤ Concept ➤ Formula ➤ Calculation ➤ Application	0.2	0.8	1
10.	Calculate weight	<u>Weight:</u> ➤ Concept ➤ Formula ➤ Calculation ➤ Application	0.2	0.8	1
11.	Calculate percentage	<u>Percentage:</u> ➤ Concept ➤ Formula ➤ Calculation ➤ Application	0.2	0.8	1
12.	Calculate ratio and proportions	<u>Ratio and proportions:</u> ➤ Concept ➤ Formula ➤ Calculation ➤ Application	0.2	0.8	1
13.	Apply Pythagoras formula	<u>Pythagoras formula:</u> ➤ Concept ➤ Formula ➤ Calculation ➤ Application	0.2	0.8	1
14.	Apply unitary method	<u>Unitary method:</u> ➤ Concept ➤ Calculation	0.2	0.8	1

		➤ Application			
15.	Calculate simple interest	<u>Simple interest:</u> ➤ Concept ➤ Formula ➤ Calculation ➤ Application	0.2	0.8	1
16.	Calculate unit cost	<u>Unit cost:</u> ➤ Concept ➤ Formula ➤ Calculation ➤ Application	0.2	0.8	1
17.	Calculate per unit income	<u>Per unit income:</u> ➤ Concept ➤ Formula ➤ Calculation ➤ Application	0.2	0.8	1
18.	Calculate profit and loss	<u>Profit and loss:</u> ➤ Concept ➤ Formula ➤ Calculation ➤ Application	0.2	0.8	1
19.	Perform billing	<u>Billing:</u> ➤ Concept ➤ Calculation ➤ Bill format ➤ Procedure ➤ Application	0.2	0.8	1
20.	Prepare simple balance sheet	<u>Balance sheet:</u> ➤ Concept ➤ Format ➤ Procedure ➤ Application	0.2	0.8	1
Total:			4	16	20
Sub module: 2: Occupational Health and Safety					
Description: It consists of skills and knowledge related to occupational health and safety applicable in the related occupational performances					
Objectives: <ul style="list-style-type: none"> • To be familiar with hazards related to this occupation • To apply preventive measures for occupational health and safety 					
Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks/skills/steps together with their related technical knowledge:					
Th.(2 hrs) + Pr.(8hrs) = Tot.(10 hrs)			Time(hrs)		
SN	Tasks or skills/ steps	Related technical knowledge	Th.	Pr.	Tot.
Be familiar with hazards related to this occupation					
1.	Be familiar with accident hazards	<u>Accident hazards:</u> ➤ Concept ➤ Causes ➤ Procedures for managing this hazard	0.2	0.8	1
2.	Be familiar with physical	<u>Physical hazards:</u>	0.2	0.8	1

	hazards	<ul style="list-style-type: none"> ➤ Concept ➤ Causes ➤ Procedures for managing this hazard 			
3.	Be familiar with chemical hazards	<u>Chemical hazards:</u> <ul style="list-style-type: none"> ➤ Concept ➤ Causes ➤ Procedures for managing this hazard 	0.2	0.8	1
4.	Be familiar with biological hazards	<u>Biological hazards:</u> <ul style="list-style-type: none"> ➤ Concept ➤ Causes ➤ Procedures for managing this hazard 	0.2	0.8	1
5.	Be familiar with ergonomic/psychological / organizational factors:	<u>Ergonomic /psychological / organizational factors:</u> <ul style="list-style-type: none"> ➤ Concept of : <ul style="list-style-type: none"> ▪ Ergonomic factors ▪ Psychological factors ▪ organizational factors ➤ Procedures for managing hazards caused by these factors 	0.2	0.8	1
Sub total:			1	4	4
Apply preventive measures for occupational health and safety					
1.	Wear safety wares	<u>Safety wares:</u> <ul style="list-style-type: none"> ➤ Identification ➤ Needs ➤ Wearing procedures 	0.2	0.5	0.7
2.	Inspect workplace before working	<u>Workplace inspection:</u> <ul style="list-style-type: none"> ➤ Concept ➤ Principle and procedures ➤ Records keeping 	0.2	0.5	0.7
3.	Inspect tools/materials/equipment before use	<u>Inspection of tools/materials/equipment:</u> <ul style="list-style-type: none"> ➤ Concept and identification ➤ Principle and procedures ➤ Records keeping 	0.1	0.5	0.6
4.	Be prevented from accident hazards	<u>Prevention of accident hazards:</u> <ul style="list-style-type: none"> ➤ Concept ➤ Being prevented from accident hazards ➤ Records keeping 	0.1	0.5	0.6
5.	Be prevented from physical hazards	<u>Prevention of physical hazards:</u> <ul style="list-style-type: none"> ➤ Concept ➤ Being prevented from physical hazards ➤ Records keeping 	0.1	0.5	0.6
6.	Be prevented from chemical	<u>Prevention of chemical</u>	0.1	0.5	0.6

	hazards	<u>hazards:</u> ➤ Concept ➤ Being prevented from chemical hazards ➤ Records keeping			
7.	Be prevented from biological hazards	<u>Prevention of biological hazards:</u> ➤ Concept ➤ Being prevented from biological hazards ➤ Records keeping	0.1	0.5	0.6
8.	Be prevented from ergonomic/psychological / organizational factors that create problems/hazards.	<u>Prevention of ergonomic/psychological / organizational factors that create problems/hazards:</u> ➤ Concept ➤ Being prevented from ergonomic/psychological / organizational factors that create problems/hazards ➤ Records keeping	0.1	0.5	0.6
	Sub total:		1	4	5
	Total:		2	8	10
Sub module: 3: First Aid					
	Description: It consists of skills and knowledge related to first aid measures applicable in the related occupational performances.				
	Objective: • To apply first aid measures				
	Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks/skills/steps together with their related technical knowledge:				
	Th.(1 hrs) + Pr.(4hrs) = Tot.(5 hrs)		Time(hrs)		
SN	Tasks or skills/ steps	Related technical knowledge	Th.	Pr.	Tot.
1.	Carryout simple dressings	<u>Carryout simple dressings:</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions ➤ Recording	0.10	0.40	0.5
2.	Apply simple bandages	<u>Apply simple bandages:</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions ➤ Recording	0.10	0.40	0.5
3.	Apply first aid for simple wounds	<u>Apply first aid for simple wounds:</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions	0.10	0.40	0.5

		➤ Recording			
4.	Apply first aid for heat /chemical burns	<u>Apply first aid for heat /chemical burns:</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions ➤ Recording	0.10	0.40	0.5
5.	Apply first aid for injuries/cuts	<u>Apply first aid for injuries/cuts:</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions ➤ Recording	0.10	0.40	0.5
6.	Apply first aid for fracture	<u>Apply first aid for fracture:</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions ➤ Recording	0.10	0.40	0.5
7.	Apply first aid for simple bleeding	<u>Apply first aid for simple bleeding:</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions ➤ Recording	0.10	0.40	0.5
8.	Apply first aid for insect bites	<u>Apply first aid for insect bites:</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions ➤ Recording	0.05	0.20	0.25
9.	Apply first aid for animal bites	<u>Apply first aid for animal bites:</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions ➤ Recording	0.05	0.20	0.25
10.	Apply first aid for frost bite	<u>Apply first aid for frost bite :</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions ➤ Recording	0.05	0.20	0.25
11.	Apply first aid for simple poisoning	<u>Apply first aid for simple poisoning:</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions	0.05	0.20	0.25

		➤ Recording			
12.	Apply first aid for electrical shock	<u>Apply first aid for electrical shock:</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions ➤ Recording	0.05	0.20	0.25
13.	Apply first aid for choking/drowning	<u>Apply first aid for choking/drowning:</u> ➤ Concept ➤ Needs ➤ Procedures ➤ Precautions ➤ Recording	0.05	0.20	0.25
Total:			1	4	5
Sub module:4: HIV/AIDS					
Description:		It consists of skills and knowledge related to safety measures to be followed for the prevention of HIV/AIDS including its management.			
Objectives:		<ul style="list-style-type: none"> • To state the concept of HIV/AIDS • To apply safety measures for prevention of HIV/AIDS 			
Tasks:		To fulfill the objective the trainees are expected to get proficiency on the following tasks/skills/steps together with their related technical knowledge:			
			Th.(1 hrs) + Pr.(4hrs) = Tot.(5 hrs)		Time(hrs)
SN	Tasks or skills/ steps	Related technical knowledge	Th.	Pr.	Tot.
1.	State the concept of HIV/AIDS 8. Define HIV 9. Enlist modes of transmission of HIV 10. Enlist signs and symptoms of HIV infected person 11. Enlist stages of HIV 12. Define AIDS 13. Enlist signs and symptoms of AIDS 14. Enlist current status of global HIV/AIDS 15. Enlist difference between HIV/AIDS	State the concept of HIV/AIDS: HIV: ➤ Definition of HIV: ➤ Modes of transmission of HIV ➤ Signs and symptoms of HIV infected person ➤ Stages of HIV AIDS: ➤ Definition of AIDS ➤ Signs and symptoms of AIDS ➤ Current status of global HIV/AIDS ➤ Difference between HIV and AIDS	0.5	2	2.5
2.	Apply safety measures for prevention of HIV/AIDS: 1. Keep touch with single partner for sexual intercourse	Apply safety measures for prevention of HIV/AIDS: ➤ Keeping touch with single partner for sexual intercourse	0.5	2	2.5

	<ol style="list-style-type: none"> 2. Ensure safe intercourse 3. Use condom carefully and consistently during each act of sexual intercourse incase of other than single sex partner 4. Keep away from sharing syringes, needles and other skin piercing instrument with HIV infected people 5. Keep away from sharing toothbrushes, blade razors or other instruments that could become contaminated from blood 6. Keep away from handling clothes or cloths that are visibly contaminated with blood 7. Follow positive health behavior 8. Get blood be tested to ensure HIV negative/positive 	<ul style="list-style-type: none"> ➤ Ensuring safe intercourse ➤ Using condom carefully and consistently during each act of sexual intercourse incase of other than single sex partner ➤ Keeping away from sharing syringes, needles and other skin piercing instrument with HIV infected people ➤ Keeping away from sharing toothbrushes, blade razors or other instruments that could become contaminated from blood ➤ Keeping away from handling clothes or cloths that are visibly contaminated with blood ➤ Positive health behavior ➤ Getting blood be tested to ensure HIV negative/positive 			
	Total:		1	4	5
Sub module: 5 : Communication					
	Description: It consists of the skills and knowledge related to communication in the related occupation. Each task consists of its steps, related technical knowledge and hour distribution.				
	Objectives: After its completion the trainees will be able:				
	<ul style="list-style-type: none"> • To handle telephone calls • To handle fax • To handle mail • To write letters • To write memos / tips / notes / notice • To perform internal communication • To perform external communication • To perform oral communication • To perform written communication 	<ul style="list-style-type: none"> • To communicate with donors To communicate with financial institutes • To link with media • To disseminate information • Write job application • Prepare Resume. • Communicate with senior. • Communicate with juniors. • Deal with customers • Request / purchase tool, supplies, materials and equipment. • Fill up leave requisition form. 			
	Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks/skills/steps together with their related technical knowledge:				
	Th.(2 hrs) + Pr.(8hrs) = Tot.(10 hrs)			Time(hrs)	
SN	Tasks or skills/ steps	Related technical knowledge	Th.	Pr.	Tot.

1.	Handle telephone calls	<u>Handling telephone calls:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Operating principles and procedures ➤ Care and maintenance ➤ Safety precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
2.	Handle fax	<u>Handling fax:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Operating principles and procedures ➤ Care and maintenance ➤ Safety precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
3.	Handle mail	<u>Handling mail:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Operating principles and procedures ➤ Care and maintenance ➤ Safety precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
4.	Write letters	<u>Writing letters:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Types of letter ➤ Component parts of each type of letter ➤ Format of each type of letter ➤ Writing letters ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
5.	Write memos / tips / notes / notice	<u>Writing memos / tips / notes / notice :</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Component parts of memos / tips / notes / notice ➤ Format of memos / tips / notes / notice ➤ Writing memos / tips / notes / notice 	0.1	0.4	0.5

		<ul style="list-style-type: none"> ➤ Precautions to be taken ➤ Keeping activity records 			
6.	Prepare simple report	<u>Preparing simple report:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Component parts of a report ➤ Format of a report ➤ Writing a report ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
7.	Prepare simple proposal	<u>Preparing simple proposal:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Component parts of a proposal ➤ Format of a proposal ➤ Writing a proposal ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
8.	Perform internal/ external communication	<u>Performing internal/ external communication:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles, procedures, and application ➤ Performing internal/ external communication ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
9.	Perform horizontal/vertical communication	<u>Performing horizontal/vertical communication:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles, procedures, and application ➤ Performing horizontal/vertical communication ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
10.	Perform oral/ written communication	<u>Performing oral/ written communication:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles, procedures, and 	0.1	0.4	0.5

		<ul style="list-style-type: none"> application ➤ Performing oral/ written communication ➤ Precautions to be taken ➤ Keeping activity records 			
11.	Communicate with financial institutes	<u>Communicating with financial institutes:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles, procedures, and application ➤ Communicating with financial institutes ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
12.	Link with media	<u>Linking with media:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles, procedures, and application ➤ Linking with media ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
13.	Disseminate information	<u>Disseminating information:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles, procedures, and application ➤ Disseminating information ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
14.	Write job application	<u>Writing job application:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Component parts of job application ➤ Format of job application ➤ Writing job applications ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
15.	Prepare resume	<u>Preparing resume:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Component parts of a resume ➤ Format of a resume 	0.1	0.4	0.5

		<ul style="list-style-type: none"> ➤ Writing resume ➤ Precautions to be taken ➤ Keeping activity records 			
16.	Communicate with senior.	<u>Communicating with senior:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles, procedures, and application ➤ Communicating with senior ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
17.	Communicate with juniors.	<u>Communicating with juniors:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles, procedures, and application ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
18.	Deal with customers/stake holders	<u>Dealing with customers/stake holders:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles, procedures, and application ➤ Communicating with juniors ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
19.	Request / purchase tool, supplies, materials and equipment.	<u>Requesting / purchasing tool, supplies, materials and equipment:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles, procedures, and application ➤ Requesting / purchasing tool, supplies, materials and equipment ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
20.	Fill up leave requisition form	<u>Filling up leave requisition form:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles, procedures, and application ➤ Filling up leave requisition 	0.1	0.4	0.5

		form			
		➤ Precautions to be taken			
		➤ Keeping activity records			
		Total:	2	8	10
Sub module: 6 : Small Enterprise Development					
	Description: It consists of the skills and knowledge related to small enterprise development in the related occupation. Each task consists of its steps, related technical knowledge and hour distribution.				
	Objectives: After its completion the trainees will be able: <ul style="list-style-type: none"> • To be familiar with entrepreneurship development • To prepare a business plan 				
	Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks/skills/steps together with their related technical knowledge:				

		Th.(4 hrs) + Pr.(16 hrs) = Tot.(20 hrs)	Time(hrs)		
SN	Tasks or skills/ steps	Related technical knowledge	Th.	Pr.	Tot.
	<u>Entrepreneurship development:</u>	<u>Entrepreneurship development:</u>			
1.	Be familiar with business / entrepreneurship	<u>Business / entrepreneurship:</u> <ul style="list-style-type: none"> ➤ Concept, definitions, need, and importance ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
2.	Develop qualities of a successful entrepreneur	<u>Qualities of a successful entrepreneur:</u> <ul style="list-style-type: none"> ➤ Concept and needs ➤ Qualities of a successful entrepreneur ➤ Keeping activity records 	0.1	0.4	0.5
3.	Follow professional ethics	<u>Professional ethics:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Professional ethics ➤ Interpretation ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
4.	Analyze prevailing rules / regulations/ laws /acts related to the profession	<u>Prevailing rules / regulations/ laws /acts related to the profession:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Prevailing rules / regulations/ laws /acts related to the profession ➤ Interpretation ➤ Precautions to be taken ➤ Keeping activity records 	0.1	0.4	0.5
5.	Develop skills of good governance	<u>Good governance:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles and procedures of good governance ➤ Precautions to be taken ➤ Keeping activity re 	0.1	0.4	0.5
6.	Be familiar with entrepreneurship development/ factors affecting the growth of entrepreneurship	<u>Entrepreneurship development/ factors affecting the growth of entrepreneurship:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Entrepreneurship 	0.1	0.4	0.5

		<ul style="list-style-type: none"> development ➤ Factors affecting the growth of entrepreneurship ➤ Precautions to be taken ➤ Keeping records 			
7.	Develop an entrepreneurship competency development [ECD] program	<u>Entrepreneurship competency development [ECD] program:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Entrepreneurship competency development [ECD] ➤ ECD program development ➤ Precautions to be taken ➤ Keeping records 	0.1	0.4	0.5
8.	Be familiar with identification / selection/appraising/gaining instructional a support of a project <ul style="list-style-type: none"> • Be familiar with identification of a project • Be familiar with selection of a project • Be familiar with appraising of a project • Be familiar with gaining instructional a support of a project 	<u>Identification / selection/appraising/gaining instructional a support of a project:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Identification of a project ➤ Selection of a project ➤ Appraising of a project ➤ Gaining instructional a support of a project ➤ Precautions to be taken ➤ Keeping records 	0.1	0.4	0.5
9.	Be familiar with the preparation of a comprehensive business plan for starting / acquiring /running a business	<u>Be familiar with the preparation of a comprehensive business plan for starting / acquiring /running a business:</u> <ul style="list-style-type: none"> ➤ Preparation of a comprehensive business plan for starting a business ➤ Preparation of a comprehensive business plan for acquiring a business ➤ Preparation of a comprehensive business plan for running a business ➤ Precautions to be taken ➤ Keeping records 	0.1	0.4	0.5
10.	Be familiar with marketing of products	<u>Be familiar with marketing of products:</u> <ul style="list-style-type: none"> ➤ Concept of product, price, place, promotion ➤ Marketing of products ➤ Precautions to be taken ➤ Keeping records 	0.1	0.4	0.5
Sub total:			1	4	5

	Business plan:	Business plan:			
11.	Collect related information / data	<u>Collecting related information / data:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance of data and information ➤ Difference between data and information ➤ Principles and procedures for collecting related information / data ➤ Collecting related information / data ➤ Precautions to be taken ➤ Keeping records 	0.4	1.6	2
12.	Prepare production plan	<u>Preparing production plan:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Component parts ➤ Format ➤ Principles and procedures ➤ Precautions to be taken ➤ Keeping records 	0.4	1.6	2
13.	Prepare cost plan	<u>Preparing cost plan:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Component parts ➤ Format ➤ Principles and procedures ➤ Precautions to be taken ➤ Keeping records 	0.4	1.6	2
14.	Prepare financial plan	<u>Preparing financial plan:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Component parts ➤ Format ➤ Principles and procedures ➤ Precautions to be taken ➤ Keeping records 	0.4	1.6	2
15.	Prepare marketing plan	<u>Preparing marketing plan:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Component parts ➤ Format ➤ Principles and procedures ➤ Precautions to be taken ➤ Keeping records 	0.4	1.6	2
16.	Prepare a business plan	<u>Preparing a business plan:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Component parts 	0.6	2.4	3

		<ul style="list-style-type: none"> ➤ Format ➤ Principles and procedures ➤ Precautions to be taken ➤ Keeping records 			
17.	Appraise business plan	<u>Appraising business plan:</u> <ul style="list-style-type: none"> ➤ Concept, need, and importance ➤ Principles and procedures ➤ Precautions to be taken ➤ Keeping records 	0.4	1.6	2
		Sub total:	3	12	15
		Total:	4	16	20
		Common module total:	14	56	70

References Book

1. Automotive paints handbook : Painting technology for auto enthusiastic and body shop professionals – by John Pfanstiehl
2. How to paint your car – By Devid H Jacobs