

250 – PAINTING AND DECORATING

Examination Structure

The following are the trade related courses to this trade.

192 – General Woodwork

193 – Building/Engineering Drawing

211 – Introduction to Building – Construction.

This course shall be examined under the component or subject grouping.

251 – PAINTING AND DECORATION (CPD 11, 12, 13 14, 15 AND 16)

Examination Scheme

The examinations will comprise of two papers as follows

251-1 – PAPER I in Two sections:

Section A: This will comprise of 40 multiple choice (Objective) questions to be attempted in 40 minutes and it carries 40 marks

Section B: This consist of seven essay questions out of which candidates are to attempt five questions in 2 hours for 60 marks.

251-2 – PAPER II - This paper will consist of one Practical test based on CPD 11, 12, 13, 14, 15, 16, syllabuses.

The practical test will be for two sections, preparations and finishing. The preparations will be done down before the practical examination day but the finishing session will be done in the presence of the examiner on the examinations day. It carries 100 marks.

251 – PAINTING AND DECORATION

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|--|---|
| 1.0 | <p>Plain Painting & Broken colour work, Tools, Materials and Equipment</p> <p>Identify, describe the common tools and equipment and state the composition to materials used in decorative painting.</p> | <ol style="list-style-type: none"> 1. Composition and uses of preparatory materials e.g. primers, sealers, fillers, undercoat, eggshell, glass, varnishes. 2. Equipment used in decorative painting e.g. torches, buckets, paint, kettles, scaffolds. 3. Common hand tools e.g. rollers (assorted) knives in assorted, brushes, hammers, pincers, trowels and etc. | <ol style="list-style-type: none"> 1. Demonstrate the use of assorted brushes on selected areas. 2. Identify common hand tools and practice the use of other tools (not brushes) associated with decorative painting. 3. Emphasize on the selection of appropriate tools. 4. Discuss the composition and uses of preparatory materials in decorative painting. 5. Demonstrate the use of preparatory materials. 6. Explain “paint system” 7. Identify the equipment used in decorative painting and discuss the use of each equipment. 8. Demonstrate the use of each equipment. 9. Emphasize on maintenance of equipment. |
| 2.0 | <p>Preparation of working drawings, sample panels, colour patterns, surfaces and grounds for decorative painting.</p> <ol style="list-style-type: none"> 1. Identify the various components of a building and use scale to draw simple building. 2. Prepare colour pattern to | <ol style="list-style-type: none"> 1. Components of a building in a working drawing. <ol style="list-style-type: none"> i. Primary element e.g. walls, columns etc. ii. Secondary elements e.g. staircases, doors, windows, etc. 2. Scale drawing 3. Colour patterns. 4. Physical properties of some painting materials and uses e.g. Turpentine, White spirit, Degreasing, Abrasive, Water 5. Surface preparation e.g. (new, previously painted and badly cracked | <ol style="list-style-type: none"> 1. Explain the components of a building in working drawing. 2. Demonstrate the knowledge of primary and secondary elements. 3. Interpretation of a building plan. 4. Prepare a working drawing to include primary and secondary element. 5. Explain the usefulness of a scale drawing. 6. Identify drawing instruments and practice scale drawing 7. Exhibit various colour patterns. 8. Discuss physical properties |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|--|---|
| | <p>specifications and explain the physical properties of materials.</p> <p>3. Explain various substrate and carry out the erection and dismantling of scaffolds.</p> | <p>substrate) e.g. wood (hard and soft wood), metal (ferrous and non ferrous) plaster, etc.</p> <p>6. Use appropriate technique i.e. cleaning, rubbing down, burning off, solvent removal, stopping and filling.</p> <p>7. Erection of scaffold e.g. trestles and boards.</p> <p>8. Dismantling of scaffold e.g. trestles and boards, which form a working platform.</p> | <p>of</p> <p>a. Turpentine</p> <p>b. White spirit</p> <p>c. Degreasing solvent</p> <p>d. Abrasive</p> <p>e. Water.</p> <p>9. Explain their importance and uses in decorative painting.</p> <p>10. Demonstrate the system of preparing e.g. new previously painted and badly cracked substrate.</p> <p>a. Rusting action and other forms of metal corrosion and</p> <p>b. Hard and soft woods.</p> <p>c. Explain methods of preparation by:</p> <p>i. Cleaning</p> <p>ii. Rubbing down</p> <p>iii. Burning off</p> <p>iv. Solvent removal</p> <p>v. Stopping and filling</p> <p>11. Insist on appropriate technique.</p> <p>12. Demonstrate the erection of trestles and boards to form a working platform</p> <p>13. Explain precautions associated with the erection of scaffolding</p> <p>14. Strict precautionary measures should be taken</p> <p>15. Discuss and demonstrate the dismantling of a working platform.</p> |
| 3.0 | <p>Measurement and Setting out</p> <p>1. Identify measuring and setting out instruments and set out a given project.</p> | <p>1. Measuring instruments e.g. metric rule, plumb bulb and line, spirit level, scale rule, try square.</p> <p>2. Basic considerations and procedures in the estimating and cost of decorative painting jobs.</p> <p>3. Measurement and set out in</p> | <p>1. Explain and demonstrate the use of each of the measuring instruments.</p> <p>2. Mention the types of measurement.</p> <p>3. Practice the use of each instrument.</p> <p>4. Discuss basic consideration in estimating and costing of</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|------|---|---|--|
| | 2. Explain basic considerations and procedures in estimating and costing of painting jobs. 3. Calculate area of plain surfaces quantity of paints and cost per square metre. | a given project. 4. Calculating areas of plain surfaces e.g. rectangular and circular surfaces. 5. Knowledge of quantity of paint required for a given surface. 6. Elements in the cost of finishing per square metre e.g. i. time element ii. materials iii. overhead and profit iv. nature of background | decorative painting jobs. 5. Calculate quantities and costs of surface costing for specified tasks. 6. Explain method to be followed in measurement and set out in a given task. 7. Stress the method of calculating and measurement. 8. Demonstrate the method applied in measuring and application of materials. 9. Discuss the importance of plain surface calculation in job planning and costing. 10. Discuss the system of determination of materials. 11. Explain the method of calculating quantities of materials specified for the job. 12. Discuss the relationship between the size of the job and time allocation 13. Explain the method use in calculating: i. Materials ii. Overhead and profit iii. Nature of background iv. Wear and tear of equipment |
| 4.0. | Technique In Decorative Painting 1. Explain and demonstrate the technique in decorative painting and the safety precautions. 2. Distinguish between | 1. Painting with correct size of brushes observing, appropriate technique, painting sequence and observing safety precautions. 2. Selection of correct tools for painting a paneled door e.g. 3” brush, 4” brush, sash brush. 3. Selection of correct tools e.g. sash tool, 12” brush, 3” | 1. Demonstrate the use of assorted brushes on selected areas 2. State the importance of “paint system” 3. Demonstrate the process of painting system and the use of appropriate technique in painting. 4. Discuss safety precautions. 5. Discuss correct painting sequence and the appropriate |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|--|--|
| | <p>broken colour effects and their production.</p> <p>3. Maintain proper working environment during and after painting</p> | <p>brush, 4" brush, rollers etc for wall area painting i.e. ceiling, cornice frieze, wall filling, picture rails, dado rails, skirting board, etc.</p> <p>4. The difference between broken colour effect i.e.</p> <ol style="list-style-type: none"> i. Rag rolling ii. Spatter iii. Shading multi-colour iv. Sponge stippling <p>5. Production of broken colour effect on surface e.g.</p> <ol style="list-style-type: none"> i. Wall filling ii. Panels iii. Other selected surface <p>6. Working environment during and after painting i.e.</p> <ol style="list-style-type: none"> i. Display of warning signs "wet paint" ii. Barriers at appropriate positions iii. Removing paint drops iv. Dismantling of scaffold after painting. | <p>techniques to be followed in painting a door.</p> <p>6. Discuss:</p> <ol style="list-style-type: none"> a. Correct painting sequence b. Insist on painting sequence. c. Appropriate techniques to be followed c. Correct size of brush d. Safety practice. <p>7. Demonstrate the process of obtaining broken colour effects.</p> <p>8. Explain the different methods of obtaining:</p> <ol style="list-style-type: none"> i. Rag rolling effect ii. Spatter effect iii. Shading multi-colour <p>9. Discuss the technique of producing different types of broken colour effect.</p> <p>10. Demonstrate different types of broken colour effect.</p> <p>11. Use correct tools and materials to obtain correct effects.</p> <p>12. Insist on appropriate technique and correct tools and materials</p> <p>13. Explain the necessity of maintaining proper work environment during and after painting.</p> <p>14. Discuss the need for displaying "wet paint" sign during and after painting.</p> <p>15. Why barriers are placed at strategic positions during painting.</p> <p>16. Emphasize the precautions to be taken while using a scaffold.</p> |
| 5.0 | Finishing and | 1. Reasons for paint e.g. | 1. Discuss reasons for paint e.g. |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|---|--|
| | Refinishing Materials 1. State and describe the reason, composition, basic properties and general application of various auto body paint. 2. Explain the various types of defects of paints in the tin and identify factors affecting the choice of a paint system. 3. Explain the functions of the operations and name common materials used in the operation. 4. Explain the difference between ordinary and metallic paints systems suitable for large metallic surfaces. | i. Protection ii. Hygiene iii. Decoration iv. Identification 2. Basic ingredients in the composition of paint e.g. pigments, binders or film former, thinner or solvent, extenders, additives (thickness, flow agents thixotropic agent, accelerators inhibitors and anti-oxidant). 3. The importance of the properties of paint e.g. consistency, opacity, spreading capacity, adhesion, elasticity. 4. Composition, basic properties and general application of:- a. Cellulose lacquer and cellulose synthetic enamel paints b. Synthetic enamel c. Acrylic enamels. 5. Identification of one trade brand of each of: a. Cellulose lacquer and cellulose synthetic enamel paints b. Synthetic enamel c. Acrylic enamels. 6. Types of defects of paints in the tin e.g. flattening feeding or livering, setting, skinning. 7. The importance of self-life, viscosity, spraying temperature and drying time with regard to automobile parts. 8. "Paint System" e.g. | i. Protection ii. Hygiene iii. Decoration iv. Identification Explain the function of pigments and other ingredients in paint making e.g. pigments, binders, thinner or solvent, extenders, additives, driers or accelerators etc A good knowledge of ingredients of paint is essential 2. Discuss the importance of the properties of paint. 1. Demonstrate the consistency opacity and spreading capacity 2. Perform experiment to show; a. adhesion b. elasticity c. density d. drying speed e. flow and f. durability 3. Explain the basic properties of cellulose synthetic enamel paints, Synthetic enamel, Acrylic enamels and discuss the basic properties Emphasize on using appropriate material for spraying. 4. Demonstrate the general method of application. 5. Discuss the different trade brand of cellulose lacquer and cellulose synthetic enamel, Synthetic enamel, Acrylic enamels. Emphasize the difference |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|-----------------|--|--|
| | | <p>priming, under coating and finishing.</p> <p>9. Factors that may influence choice of a paint system e.g.</p> <ul style="list-style-type: none"> a. availability and cost of paint and painting equipment, dry time, standard of finish required, parent materials b. Type of finishing quality. c. Types of substrates: porous/non-porous; condition of the environment: polluted, humid etc. <p>10. Functions and properties of the operations naming common materials used in the operations e.g. degreasing, filling, stopping, priming burnishing, sealing, feather edging, glatting tacking off etc.</p> <p>11. The difference between straight paints and metallic paints, composition, application and peculiar problems.</p> <p>12. Paint system for large metallic surfaces e.g. public service vehicles, insulated and refrigerated bodies, ambulance, furniture vans, caravans, coaches.</p> <p>13. Functions of masking before spray painting.</p> <p>14. Types of masking</p> | <p>between nitrocellulose materials and synthetic enamels</p> <p>6. Show samples of at least one each of the classes of preparatory brands.</p> <p>7. Discuss the characteristics of the brands.</p> <p>8. Explain defects of paint in the tin, their causes and preventive remedies.</p> <p>9. Discuss the composition of the paints – a knowledge of basic ingredients.</p> <p>10. discuss and relate these paint terms to automobile paint i.e. self life, viscosity, spraying temperature and drying time.</p> <p>11. Demonstrate the process of paint system and the technique involved in achieving good results.</p> <p>12. Discuss the factors that may influence choice of paint systems. Knowledge of the characteristics of paint is required.</p> <p>13. Demonstrate knowledge of availability and cost of paint and painting equipment, drying time, standard of finish required, parent materials and durability of materials.</p> <p>16. Explain the functions and properties of operation like degreasing, filling, stopping, priming, burnishing, sealing, feather edging flattening, tacking off operations.</p> <p>17. Demonstrate the operational functions of the above and the appropriate technique involved.</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|--|--|
| | | i. Masking tape ii. Masking paste. | 18. Discuss the difference between straight paints and metallic paints A knowledge of the composition of straight paints and metallic paints is essential. 19. Explain the basic composition, general methods of application, and problems associated with them. 20. Discuss the paints systems suitable e.g large metallic surfaces. 21. Discuss the nature of the surface of public service vehicles, insulated and refrigerated bodies, ambulance, furniture vans, caravans, coaches and appropriate preparation for each before receiving paint. 22. Demonstrate the method of application 23. Describe different types of trade brands and demonstrate method of application of each. 24. Discuss the disadvantages of each. |
| 6.0 | Tools, Materials and Equipment 1. Identify and state the composition, properties and uses of spray-painting tools, materials and equipment. 2. Explain the working | 1. Part of spray painting tool, e.g. varnish brushes, touch up brushes, (assorted) strainer etc. 2. Type of spraying materials their composition properties and uses e.g. water paints, etching primers and surface primers, rust remover, oil paints, lacquers, nitro cellulose etc. 3. Types of spray painting | 1. Make sketches of spray painting tools and label each part of each tool. 2. Discuss the uses of spray painting tools. 3. Demonstrate their maintenance and storage. Brushes should be kept from mold attack. 4. Discuss the composition, properties and uses of sprayable materials e.g. water paints, etching |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|--|--|
| | <p>principles/functions and carry out maintenance of spray painting equipment.</p> | <p>equipment e.g. petrol and power driver types, various types of spray guns, air and fluid types volume spraying equipment, drying equipment, extractor fans, face masks, protective wear etc.</p> <p>4. Working principles of e.g.</p> <ol style="list-style-type: none"> i. petrol and power driven compressors, ii. suction, gravity, pressure feed guns internal and external mix gun, and other related equipment e.g. sanders, hoses, spray booths etc. <p>5. Service and maintenance of spray painting equipment e.g. compressors, petrol or power driven, spray guns (different types) coupler/air material hoses</p> | <p>primers, rust remover, oil paints, lacquers, nitro cellulose etc.</p> <ol style="list-style-type: none"> 5. Explain the basic composition and their characteristic and where to apply. 6. Explain the difference between various types of spray painting equipment e.g. petrol and power driven. 7. Discuss various types of gun e.g. suction feed, gravity feed, pressure feed internal/external mix etc. Emphasize on good knowledge of spraying equipment. 8. Demonstrate the use of the different types of spraying gun. 9. Explain functions of each. 10. Discuss functions and maintenance of spraying compressors. 11. Discuss the working principles, method of operation. 12. Demonstrate the use of each and the technique in handling them. 13. Dismantle and reassemble the various spray guns, study the working principles and maintenance of each. 14. Discuss/demonstrate the services of spray-painting compressors e.g. low and high pressure (pressure power driven) airless spray equipment. 15. Know the working principles and be able to rectify faults. Emphasize the checking of oil level in the compressor. |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|--|---|
| | | | 16. The working principles/functions of spray guns. 17. Demonstrate the knowledge of dismantling and reassembling of the spray gun. |
| 7.0 | Safety Regulations and Practice Requirement 1. List and explain the health hazards and safety rules in a vehicle painting shop 2. Identify and describe a typical material storage system and the functions of basic safety equipment for the painting shop. 3. Discuss procedures in the event of accident. Draft safety rules and regulations in a painting shop and undertake first aid application in case of minor accident. | 1. Safety responsibilities of employer and employees in a vehicle painting shop e.g. fire and burn, industrial dermatitis, toxic fumes, dusts etc. 2. Health hazard in the painting and industrial finishing workshop e.g hazards in the use of: a. Materials b. Equipment 3. Industrial hygiene 4. Toxicity fumes etc 5. Materials storage system in a painter's workshop 6. Functions of basic safety equipment for the paint shop e.g. fire extinguisher, face mask and respirators, overall, fume and dust extractors, safety shoes or boot, industrial gloves, safety helmet, goggles etc. safety precaution in a vehicle painting workshop. 7. Importance of first aid application during (a) minor cut, (b) electric shock (c) contact, with irritants (d) burns (e) fume poisoning. 8. Safety measures at work e.g. spray booths and ovens. | 1. Discuss responsibilities of employer and employees 2. Undertake routine application of safety measures at work. 3. Discuss fire equipment and demonstrate its use. 4. Prepare and carry out work with due regard to safe working procedures and safety precaution. 5. Study the safety regulations. 6. State method of treating some minor accidents in the spray painting shop. 7. A study of the safety regulations is essential 8. Display safety sign 9. Discuss the importance of personal hygiene. 10. A knowledge of industrial hygiene. Emphasize on having a copy of working rule of the industry. 11. Explain the danger of toxic fumes 12. Discuss regulations governing the use of materials and awareness of potential hazards in the use of equipment in work situations. 13. Explain causes of health hazards. 14. Explain the storage system in a painter's workshop. 15. Demonstrate the layout of storage system required. |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|---|---|
| | | | <p>Insist on good ventilations.</p> <ol style="list-style-type: none"> 16. Mention the role of a shop man or a store keeper 17. Chemical fire extinguisher, (interpreter instructions supplied with it) practice usage. 18. Discuss the importance of safety precaution. 19. Demonstrate the use/function of each of the safety equipment. 20. Discuss safety precaution in a vehicle spraying workshop. 21. list safety rules and regulations for the paint shop. 22. Mention safety method which should be applied in all undertakings in the workshop. 23. State the methods of treating some minor accidents in the spray painting workshop. 24. Mention safety method, which should be applied to every work undertaken in the spray painting shop. 25. Discuss the application of safety measures at work 26. Demonstrate the importance of safety measures in the use of spray booths and ovens. 27. A knowledge of the working rules in the industries. 28. Knowledge of the regulations governing the use of materials. Emphasize on safety measures. |
| 8.0 | <p>Spray Booths and Ovens</p> <ol style="list-style-type: none"> 1. Prepare a layout sketch of a standard spray booth and | <ol style="list-style-type: none"> 1. Construction and organization of spray booths and ovens. 2. Factors affecting location and planning of a vehicle painting shop. | <ol style="list-style-type: none"> 1. Describe the basic techniques and requirements in the construction of a spray painting workshop. 2. Visits to spray painting shops. |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|---|---|
| | <p>feature of a typical low bake.</p> <p>2. State the condition for effective spraying and explain the methods of moving a vehicles in a paint shop.</p> | <p>3. Layout of a spray booth indicating e.g. lighting, types and sizes of work stations, safety installations, storage facilities, etc.</p> <p>4. Typical low bake conveyor ovens. Display safety signs in the spray painting shop.</p> <p>5. Necessary booth conditions for effective spraying e.g. pure air, adequate temperature and humidity, proper lighting.</p> <p>6. Merit of moving vehicles in a paint shop i.e.</p> <ul style="list-style-type: none"> i. manual method ii. mobile hydraulic jacks iii. turntable iv. rail and bogie system. <p>7. Elements in the organization of vehicle paint shop i.e.</p> <ul style="list-style-type: none"> i. Element supervision ii. Organization knowledge and ability | <p>3. Mention different types of structural works</p> <p>4. State safety installation requirement and storage facilities. Select an appropriate location.</p> <p>5. sketch a standard spray booth, indicate lighting positions and special features required in the booth. Check on the location of the spray booth before sketching.</p> <p>6. Mention different types of related structural work for a spray booth</p> <p>7. Storage and fire protecting devices to be discussed.</p> <p>8. Identify and compare a typical low bake and make conveyor ovens.</p> <p>9. Sketch diagram of low bake and make coneyor ovens showing the layout features.</p> <p>10. A visit to vehicle painting workshop having all the requirements of a standard workshop.</p> <p>11. Describe location of a spray booth for adequate spraying.</p> <p>12. Discuss and specify areas and features that will eliminate spray painting defects.</p> <p>13. State the importance of having adequate lighting, temperature and elimination of humidity.</p> <p>Check the spraying booth for effective spraying conditions.</p> <p>14. Examine and understand the different methods of moving vehicles in the paint shop.</p> <p>15. Demonstrate the operation of</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|--|--|
| | | | <p>different equipment.</p> <p>16. Discuss the maintenance of each of method. Emphasize on supervision</p> <p>17. Mention some tools and equipment required for the job.</p> <p>18. Discuss care and maintenance of plant and appliances.</p> <p>19. State the importance of strict time keeping.</p> <p>20. State the main requirements for establishing and maintaining good working relationship between apprentices/workers. Insist on strict supervision and the maintenance of good relationship with the employer and the employees.</p> |
| 9.0 | <p>Finishing and Refinishing Jobs</p> <p>1. Explain the need for adequate planning of finishing and refinishing jobs and identify the basic elements in the planning.</p> <p>2. Carry out spray painting jobs and be able to plan, and cost finishing and refinishing jobs.</p> | <p>1. Planning of finishing and refinishing jobs and identification of basic elements e.g. size, nature and condition of parent materials , standard of finish, paint system to be used, method of application and equipment availability.</p> <p>2. Importance of costing before commencing job.</p> <p>3. Elements in the costing of finished and refinishing jobs. E.g. parents material, preparatory material cost labour hourly rate, cost of overhead profit.</p> <p>4. Cost of finishing jobs.</p> <p>5. Application of paint with regard to:</p> <p>i. volume and air pressure of paint</p> <p>ii. distance from power</p> | <p>1. Examine and understand nature of finishing and refinishing for the specified tasks.</p> <p>2. Select and specify paint system for the job.</p> <p>3. Describe the nature and condition of parent material required for the standard of finish required of the finishing and refinishing.</p> <p>4. Explain the method of application and tools and equipment required for the job. Emphasize on adequate planning. Discuss the importance of reasonable costing before commencing a job i.e. identification of nature of work in the given tasks. Time involved in the preparation, amount of materials/cost etc.</p> <p>5. Discuss the relationship</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|-----------------|---|---|
| | | <p style="text-align: center;">to the object being sprayed.</p> <p>6. Area to be painted and quantity of paint to be used.</p> <p>7. Element in the costing of finished spray job e.g. material, time, profit and overhead.</p> <p>8. A spray painting job, e.g. wood body finishing.</p> | <p>between the size of the job and time allocation.</p> <p>6. Insist on identifying the nature of work before costing.</p> <p>7. Explain the method used in calculating cost for wear and tear of equipment.</p> <p>8. Explain the method of preparing</p> <ol style="list-style-type: none"> i. cost of parent material ii. labour and hourly rate iii. cost of overheads <p>9. Demonstrate the method of measuring surface area.</p> <p>10. Explain the method of calculation the quantity of material that will cover the surface and also cost of labour, overhead and profit.</p> <p>11. Discuss the application of paint taken into consideration (i) volume and air pressure of paint.</p> <p>12. Demonstrate the method and distance required between the spray gun and the object to be sprayed.</p> <p>13. Explain (a) volume (b) air pressure. Knowledge of calculation should be emphasized.</p> <p>14. State the method to be followed in preparing material to have the required viscosity and the pressure required per square metre.</p> <p>15. demonstration of the system of measuring instruments in metric.</p> <p>16. Explain the method of calculating quantity of materials that will cover the</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|---|---|
| | | | <p>surface and also cost of labour, overhead and profit.</p> <p>17. Discuss the relationship between the job and time allocation.</p> <p>18. Explain the method used in calculating materials, time, profit and overhead.</p> <p>19. Identify different types of wood e.g. hard wood, soft wood, and resinous wood.</p> <p>20. State appropriate materials and paint system for: (a) soft wood (b)hard wood,(c) resinous wood. Emphasize the use of correct paint system.</p> <p>21. Explain the reason for the treatment given to each wood.</p> |
| 10 | <p>Surface for Spray Painting</p> <p>1. Describe the nature and techniques of preparing various surfaces for spray painting</p> <p>2. Carry out spray painting</p> | <p>1. Qualities of sprayable surfaces, e.g. metal (ferrous and non ferrous), fibre glass, reinforced plastic, wood (hard and soft) rendered surface etc.</p> <p>2. Methods of preparing surfaces e.g. welding minor joints, (gas welding), repairing and using body filler, cleaning, sanding (manual or mechanical) filling (cellulose), sealing, stopping.</p> <p>3. Dry prepared surfaces by air duster and or with chamois leather.</p> <p>4. Masking spray painting job with:</p> <p style="padding-left: 20px;">i. masking paste</p> <p style="padding-left: 20px;">ii. masking tape</p> <p style="padding-left: 20px;">iii. masking paper</p> <p>5. Spray test area by adjusting</p> <p style="padding-left: 20px;">i. material setting</p> <p style="padding-left: 20px;">ii. pressure.</p> | <p>1. Explain the qualities of sprayable various surfaces.</p> <p>2. Discuss and demonstrate the methods to be adopted to obtain the qualities of sprayable surfaces e.g. metal (ferrous and non ferrous), fibre glass, reinforced plastic, wood (hard and soft) rendered surface etc.</p> <p>3. discuss the appropriate method of preparing different surfaces for spray painting</p> <p>4. Demonstrate the preparation of various surfaces by using these methods where it is applicable, e.g. welding minor joint (gas welding), repairing and using body filler, cleaning, sanding (manual or mechanical) filling (cellulose), sealing, stopping</p> <p>Insist on appropriate</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|---|--|
| | | | <p>preparation and knowledging technique.</p> <ol style="list-style-type: none"> 5. Demonstrate the use of chamois leather or air duster to dry a wet surface. 6. Explain the different areas where air duster and chamois leather are to be used to obtain good result. Use appropriate method to dry the surface. 7. Discuss appropriate method to dry the surface. 8. Explain the difference between masking paste, masking tape, masking paper 9. Demonstrate the use of each masking materials on specific tasks showing the area they are suitable.. 10. Demonstrate the adjustment of material setting and pressure. 11. Demonstrate by test spraying area noting the accuracy of the adjustment. 12. Test the spray gun on a small area before full-scale operation. |
| 11 | <p>Vehicle Painting: Principles and Processes</p> <ol style="list-style-type: none"> 1. Explain rusting action and other forms of metal corrosion and their prevention 2. Describe the methods of application and equipment used in paint processes. 3. Organize and | <ol style="list-style-type: none"> 1. Forms of rusting action/metal corrosion and their activating condition. 2. Measure to prevent rusting/metal corrosion 3. Application methods and equipment used in paint processes, e.g. brush application, spray painting, dipping process, flow coating application, electro-deposition process, wet-on dry application. 4. Typical “high baked” and “low baked and storing | <ol style="list-style-type: none"> 1. State rusting action and other forms of metal corrosion 2. Discuss their activating condition. 3. Explain causes of rust corrosion 4. Discuss corrosion and oxidation and their causes. 5. Explain precautionary methods to prevent rust or corrosion 6. Demonstrate the system of preventing metals from corrosion either by applying appropriate primer or other |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|---|---|
| | <p>execute operations involved in spray painting jobs.</p> <p>4. Identify and take preventive methods against defects in vehicle spray painting</p> | <p>processes”</p> <p>5. Procedures for carrying out complete respray over bare metal and respraying an existing finish for jobs involving single and multi-colours</p> <p>6. Relative merits of hot and cold spraying methods.</p> <p>7. Importance of adequate preparation of surfaces method of preparation e.g. using of paint remover (a) abrasive cleaning (b) acid pickling and treatment phosphate liquid (c) flame cleaning (d) washing with cellulose thinner or with paint (e) use of aluminum paint primer for resinous wood (g) shot blasting.</p> <p>8. Prepare for spray painting old ferrous metal surface, aluminum alloy surface glass fibre reinforced plastic resinous oily woods.</p> <p>9. Types of masking</p> <ol style="list-style-type: none"> i. masking paste ii. masking tape iii. masking paper <p>10. Operations involved in spray painting jobs by using cellulose synthetic enamel, acrylic enamel metallic paints on bare metal, and over an existing finish and local repair.</p> <p>11. Operations after spraying and their importance e.g. removal of masks, burnishing, polishing, removal of marks removal of over spray, cleaning and refitting of parts removed</p> | <p>coating materials</p> <p>7. Discuss the application methods and the equipment used in painting processes e.g. . brush application, spray painting, dipping process, flow coating application, electro-deposition process, wet-on dry application. Emphasize appropriate application method in painting processes.</p> <p>8. List each equipment and their working system</p> <p>9. Demonstrate special technique in the use of each equipment.</p> <p>10. Identify and compare high baked” and “low baked and storing processes”</p> <p>11. Discuss the two processes.</p> <p>12. List the advantages of each process over the natural drying process of paint.</p> <p>13. A visit to automobile plant is recommended. Emphasize appropriate procedure in automobile spraying.</p> <p>14. Discuss general procedure for spraying overbare metal e.g. cleaning. Removal of rust and scale, degreasing or etching and abrading.</p> <p>15. Prime with appropriate primer under-coat and paint with appropriate finishing material.</p> <p>16. Demonstrate the preparation of existing finish job. E.g. by thoroughly rubbing down fill where necessary with appropriate filler. Under coat with appropriate under coat for either single colour or multi colour. Finish with</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|-----------------|--|--|
| | | <p>vacuum cleaning of the interior, lining in work.</p> <p>12. Defects, causes and preventive measure in spray painting e.g. blustering, blooming, blushing, bridging cob webbing, dry spray, bitterness, excessive over-spray, lifting, orange peel, pin holing, runs, sags, curtain, shelving, discoloration, grinding etc.</p> <p>13. Operation of spray e.g. removal of masks, burnishing, polishing, removal of marks removal of over spray, cleaning and refitting of parts removed vacuum cleaning of the interior, lining in work.</p> <p>14. Defect in finishing and refinishing jobs</p> <p>15. Remediating defects in vehicle painting.</p> | <p>required colours.</p> <p>17. Discuss the relative merits of hot ad cold spray methods.</p> <p>18. State the advantages of hot spraying over cold spraying. Insist on the appropriate temperature for hot spray.</p> <p>19. Discuss the treatment of each material for the two processes.</p> <p>20. Enumerate the durability of the two processes.</p> <p>21. Follow the required preparation for wood and metal surfaces. Emphasize on adequate preparation of the surface.</p> <p>22. Discuss the surface where paint remover, abrasive cleaning, flame cleaning are best suited.</p> <p>23. Demonstrate their uses.</p> <p>24. Enumerate the surfaces suitable to use: cellulose thinner for washing, phosphate liquid, acid pickling.</p> <p>25. Demonstrate their uses.</p> <p>26. Demonstrate the preparation of wood surface, resinous wood surface and metal surface.</p> <p>27. Explain the chemical action of cellulose thinner, acid pickling, phosphate liquid on surfaces they are applied.</p> <p>28. Discuss and explain the differences of old ferrous metal surface, aluminum alloy surface, glass fibre reinforced plastics resinous oily woods.</p> <p>29. State the preparation of each for spray painting.</p> <p>30. List primers for the different</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|-----------------|----------|--|
| | | | <p>types of surfaces and method and technique of application.</p> <p>31. Discuss masking materials</p> <p>32. Demonstrate with the various masking materials</p> <p>33. State reasons for masking</p> <p>34. list the operations involved in spray painting jobs using synthetic enamel, acrylic enamel, metallic enamel paint on:</p> <ol style="list-style-type: none"> a. bare metal b. over existing finish and c. local repair <p>35. Execute the operations involved in spraying the surfaces, selection of materials and the technique required in each operation.</p> <p>36. Discuss the materials</p> <p>37. Discuss the final detail operations after spraying and explain their importance. Emphasize care in the final detail operations.</p> <p>38. List the operations e.g. . removal of masks, burnishing, polishing, removal of marks, removal of overspray, cleaning and refitting of parts removed vacuum cleaning of the interior, lining in work.</p> <p>39. Demonstrate the operational methods for each of the operations.</p> <p>40. List the defects. Explain their causes and preventive measure for each.</p> <p>41. Sample of the defects should be made available for the student to visualize.</p> <p>42. List out detail operation after spray.</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|--|---|
| | | | 43. Discuss each operational method. 44. Examine finishing and refinishing jobs. Emphasize on the inspection of finishing job. 45. Discuss how defect can be rectified and methods of operation. Discuss remedying defects in spray painting. Explain the defect that may arise and method of the remedial approach. |
| 12 | Maintenance In Spray painting 1. Identify and replace defective parts of spray gun. 2. Maintain other tools used in spray painting and tidy up work/work premises. | 1. Replacement of defective parts of spray gun. 2. Dismantle the gun set up. 3. Maintenance of the spray gun 4. Service the spray gun. 5. Re-assemble the spray gun and store it. 6. Maintain tools use in spray painting e.g. varnish brush, touch up brushes (assorted) scrappers, knives (assorted) strainers e.t.c. 7. Tidiness in the workshop e.g. i. tidy up work ii. tidy up premises. | 1. Discuss the spray gun. 2. Dismantle the gun to know all the component parts. 3. Demonstrate the repair of defective parts 4. Explain the working principle of the spray gun 5. Demonstrate the process of the detecting common defects in and knowledge of repairs to the spray gun set up. 6. Demonstrate the dismantle the gun set up 7. Explain the specific working system of each part 8. Discuss the maintenance of the spray gun. 9. Demonstrate: a. the dismantling of gun. b. Servicing e.g. oiling/greasing Demonstrate the greasing and oiling of the spray gun. 10. Discuss the maintenance of spray painting tools e.g. varnish brush, touch up brushes (assorted) scrappers, knives (assorted) strainers. 11. Demonstrate the maintenance of brushes e.g. |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|---|---|
| | | | <p>washing of brushes with soap and water after cleaning with paraffin, removing the water and lay it flat on the rack free from Mott. Touch up brushes e.g. pencil brushes clean first with paraffin then soap and greased.</p> <p>12. Scrappers and knives should be cleaned thoroughly after use. If it is to be kept for a long period, grease and put flat on the rack.</p> <p>13. Explain the importance of tidying up work and work premises.</p> <p>14. Discuss industrial hygiene.</p> |
| 13 | <p>Tools, Materials and Equipment in Sign Writing</p> <p>1. Identify and describe tools and equipment used in lining, sign and design work and their maintenance.</p> <p>2. Identify and describe properties of lining, sign and design materials.</p> | <p>1. Tools used in lining, sign and design work and their uses: liners fitchers, pencil brushes, (various sizes) knives, scrappers, bridges mahl stick, straight edge, pencils, (assorted) set square, dividers etc.</p> <p>2. Materials used in lining, sign and design work e.g. drawing papers (various grade and size) water colours, oil colour, cellulose materials. Varnishes, stickers.</p> <p>3. Properties and uses of drawing papers, water colours, oil colour, cellulose materials, varnishes, stickers etc.</p> <p>4. Equipment use in lining, sign and design work e.g. step ladders, trestles, scaffold boards, paint kettles, paint buckets, spray guns, blow lamps (gas blow torches compressors</p> | <p>1. Discuss the uses of lining, sign and design work.</p> <p>2. List the various tools.</p> <p>3. The detail of a normal kit of tools required by the sign writer. Emphasize a maintenance of tools. List materials used for lining, sign and design work and discuss them.</p> <p>4. Discuss properties of water colours, oil colour, cellulose materials, varnishes and stickers.</p> <p>5. Demonstrate their uses.</p> <p>6. List the specific areas they are used. Discuss each of the equipment used in lining, sign and design work e.g. step ladder, trestles, scaffold board, paint kettles, paint buckets, spray guns, blow lamps, gas blow torches compressor etc.</p> <p>Demonstrate the specific job and operation of each.</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|--|--|
| | | etc) 5. Maintenance of tools and workshop premises. | Emphasize on maintenance of equipment. Demonstrate the maintenance of tools and equipment and work premises. Discuss industrial hygiene. A knowledge of safety and welfare is essential. |
| 14 | Measurement in Lining, Sign and Design Work 1. Identify measuring instruments and measure out lining, sign and design jobs in given specification. 2. Estimate the time and cost of production of lining, sign and design projects. | 1. Measuring instruments used in lining and design work e.g. metric rule, tape rule, scale rule. 2. Lining, sign and design in given specifications. 3. Quantity of material required for a given project. 4. Estimate to complete a given job, consider i. area and size of work ii. design involved iii. materials to be used. 5. Cost of producing lining sign and design project. | 1. Discuss the use of: a. metric rule, b. tape rule, c. scale rule. 2. Demonstrate their uses in lining and design work and recording measurement. 3. Discuss and understand the requirements of the given specification. 4. Demonstrate the lining, sign and design work. 5. Calculate the surface area of the given project and work out the coverage of materials. 6. Discuss spreading power of material, size work and prices of materials. A knowledge of the spreading power of the appropriate material is essential. 7. Discuss methods of estimation taking into consideration of area and size of work, design involved and materials to be used. 8. Demonstrate the methods of estimating 9. Explain the methods of estimating for lining sign and design project taking into |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|---|---|
| | | | consideration; i. area of work ii. type of finish iii. material required iv. design involved. 10. Demonstrate the method of calculation of surface area and knowledge of materials required, type of finish and the design. |
| 15 | Preparation for sign Writing 1. Sketch various components of a given building plan and write specifications for colour to be applied on the building 2. Explain various substrates preparation match colour to specification and set up working platform | 1. Building sketch showing a. interior and exterior b. front elevation c. back elevation d. side elevation e. interior details 2. Colour specifications for interior and exterior, front elevation, back elevation, side elevation. 3. Paint the sketch of a building with: a. postal colours b. actual colours 4. Thin paint to required viscosity and strain tool for stirring e.g. mixing paddle i. thinning material ii. strainer 5. Colour matching 6. Substrate preparation e.g. wood, metals, plaster, etc. 7. Technique to be use e.g. cleaning, rubbing down (sanding) burning off, stopping, filling etc. 8. Prime surface with wood primer metal prime, alkali resisting primer. 9. Paint a given surface taking into consideration the colour of the background. 10. Working platform | 1. Demonstrate and sketch plan of a building indicate interior details. 2. Sketch front elevation, back elevation, side elevation. 3. Recognise the main elevation of a building. 4. Discuss the importance of colour 5. Prepare simple colour schemes for interior and exterior. 6. Demonstrate the painting of the sketch already done with a postal colours and actual colours 7. Discuss the thinning of paint 8. Demonstrate thinning and strain 9. State the requirement of thinning and straining. 10. Discuss and demonstrate colour matching. 11. Study the colour circle and colour theory. 12. Practice and demonstrate colour matching. 13. Demonstrate the matching of paint starting form light colours and adding deeper colours gradually. 14. State method to be adopted when matching a colour. 15. Demonstrate the preparation of substrate e.g. wood, |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|--|--|
| | | <p>involving the use of trestle and scaffold board and the safety practice required.</p> | <p>metals, plaster by appropriate method applicable to each substrate cleaning, rubbing down (sanding) burning off, stopping, filling etc.</p> <p>16. State the preparation applicable to each surface.</p> <p>17 Demonstrate the painting of surface by using appropriate primer to wood, metals and plaster e.g. wood primer for wood surface, metal prime for metal alkali resisting for primer.</p> <p>Prepare the background colour of the surface to receive new paint.</p> <p>18. List the safety practice required for the use of scaffold board.</p> <p>19. Demonstrate the setting up of a working platform involving the use of trestle and scaffold.</p> <p>Safety precaution with regard to scaffolding</p> |
| 16 | <p>Technique in lining Sign and Design work</p> <p>1. Draw lines freely with aid of tools and identify protective materials/coating used in lining, sign and design work.</p> <p>2. Construct and paint various types of letters and numerical and outline the</p> | <p>1. Line freely with, Pencils, pencil brushes, brush liners, fitches.</p> <p>2. Line with:</p> <p>i. bridges</p> <p>ii. mahl sticks</p> <p>iii. wheel liners</p> <p>3. Construction and painting of letters in numerical (in capital and lower cases including san serif block lettering) e.g fine square, roman letters, script.</p> <p>4. Scale out a design i.e. by:</p> <p>i. graphing</p> <p>ii. blowing</p> <p>5. Reproduce a scale design</p> | <p>1. Demonstrate lining with lining tools e.g. Pencils, pencil brushes, brush liners, fitches.</p> <p>2. Practice lining with appropriate tools.</p> <p>3. Discuss the specific use of each tools for lining.</p> <p>4. Discuss these equipment and their uses: bridges, mahl sticks, wheel liners</p> <p>5. Demonstrate the techniques of using the equipment.</p> <p>6. Select possible procedure for their uses.</p> <p>7. Discuss the various letters, and methods of construction.</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|---|--|
| | composition and characteristics of materials. | <p>specific colour</p> <p>6. protective material/coasting used in lining, sign and design work e.g. vanish, lacquer, gloss, wax etc.</p> <p>7. The composition and characteristics of:</p> <p>a. vanish</p> <p>b. lacquer</p> <p>c. wax</p> | <p>The point system.</p> <p>8. Select drawing instrument required for construction</p> <p>9. Construct letters in;</p> <p>i. fine square</p> <p>ii. roman</p> <p>iii. scripts.</p> <p>10. Paint letters with an appropriate tools</p> <p>11. Explain the specific method of scaling out a design by</p> <p>a. graphing</p> <p>b. blowing</p> <p>12. Make a design by</p> <p>a. graphing</p> <p>b. blowing</p> <p>Demonstrate and paint the reproduced scale design with specific colours</p> <p>13. Discuss protective materials used in lining, sign and design work e.g. vanish, lacquer, gloss, wax etc.</p> <p>14. Explain the specific area where vanish, lacquer, gloss, wax are used in lining, sign and design work.</p> <p>15. Demonstrate their use.</p> <p>16. State the composition and characteristics of:</p> <p>a. vanish</p> <p>b. lacquer</p> <p>c. wax</p> <p>17. Discuss the composition of the material and its characteristics.</p> |
| 17 | <p>Perspective</p> <p>1. Draw perspective of interior of a building and colour the drawing.</p> <p>2. Design the</p> | <p>1. Perspective of the interior of a building</p> <p>2. colour the Perspective drawing</p> <p>3. Design a Colour scheme to suit the lighting of an interior</p> | <p>1. Draw perspective of interior of a building: indicate appropriate feature in it. Select and specify a colour scheme.</p> <p>Demonstrate by painting the perspective drawing with postal colours.</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|--|--|
| | colour scheme to suit the lighting effect of the interior. | | <ol style="list-style-type: none"> 2. Examine various colour system 3. Discuss effect of artificial lighting to interior 4. Design a colour scheme that will satisfy the effect of artificial lighting to interior |
| 18 | Mechanical and Motive power Tools <ol style="list-style-type: none"> 1. Identify power tools for cutting sign and design work. State the safety precautions for working with the tools. 2. Explain the working principles of each power tools and equipment and apply appropriate coating to a given surfaces. | <ol style="list-style-type: none"> 1. Power tools for cutting sign and design e.g. <ol style="list-style-type: none"> i. jig saw ii. orbital sander iii. hand drill. 2. The safety precautions for working with the tools e.g. jig saw, orbital sander on metallic or wooden pattern 3. Sand edges of design with orbital sander. 4. Portable equipment used for the application of coating: <ol style="list-style-type: none"> i. dip coating machine ii. roller coating machine iii. electrostatic machine iv. Fluidized bed coating equipment. v. Curtain coating equipment. 5. Working principles of power tools and equipment. | <ol style="list-style-type: none"> 1. Cut out design using power tools e.g. jig saw 2. Using orbital sander, sand down the design. 3. Demonstrate the technique of using power tools. 4. Discuss safety precautions in using power tools; e.g. jig saw, orbital sander. 5. Discuss function of basic safety equipment for painting shop 6. Demonstrate the technique in using orbital sander for edges of cut out designs 7. Discuss working system of the orbital sander. 8. State the method of fixing and removing of worn out glass paper. 9. Practice the use. 10. Discuss the portable equipment used for the application of coating: <ol style="list-style-type: none"> i. dip coating machine ii. roller coating machine. |
| 19 | Tools, Materials and Equipment. <ol style="list-style-type: none"> 1. Identify and select specific tools and equipment used in wall hanging | <ol style="list-style-type: none"> 1. Tools used in wall hanging their parts and application e.g. paper hanging brush, scissors or sheers, seam and angle rollers, felt rollers, casing, wheels, 2. Materials used in wall | <ol style="list-style-type: none"> 1. Discuss tools used in wall hanging their parts and application e.g. paper handing brush, scissors or sheers, seam and angle rollers, felt rollers, casing wheels. |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|---|--|
| | <p>and their maintenance.</p> <p>2. Identify and select materials used in wall hanging, stating their composition and properties.</p> | <p>hanging, their compositions, properties and uses e.g.</p> <p>i. Adhesive (Assorted)</p> <p>ii. Lining papers (assorted)</p> <p>iii. Wall hanging (assorted) etc.</p> <p>3. Wall hanging equipment and their specific function e.g. paste board, straight edge, plumb bob and line, buckets, drop cloths, step ladder and trestle, steam stripper, spirit level etc.</p> <p>4. Use of appropriate wall hanging tools, equipment and materials in given jobs.</p> <p>a. Tools e.g. paper hanging brush, scissors or sheers, seam and angle rollers, casing wheels,</p> <p>b. Equipment e.g. pastes board, straight edge, plumb bob and line, buckets, drop cloths, step ladder and trestle, steam stripper, spirit level.</p> <p>c. Materials, e.g. adhesive, lining paper, wall hanging paper.</p> <p>5. Care and maintenance of tools and equipment.</p> | <p>a. State their parts</p> <p>b. Their application in wall hanging.</p> <p>2. Demonstrate the use of tools.</p> <p>3. Emphasize on appropriate maintenance of tools.</p> <p>4. State each specific function</p> <p>5. List</p> <p>a. Adhesives used in wall hanging types</p> <p>b. List out various lining papers.</p> <p>c. List out wall hanging.</p> <p>6. Demonstrate the application each.</p> <p>7. State the composition</p> <p>8. State the advantages of wall hangings</p> <p>Emphasize the use of good quality materials</p> <p>9. Discuss wall hanging equipment.</p> <p>10. List their specific functions.</p> <p>11. Demonstrate the method of operating each of them.</p> <p>12. Demonstrate care and maintenance of each equipment</p> <p>13. Discuss the method of wall hanging pasting and folding. Selection of tools, equipment and materials in a given job.</p> <p>14. Demonstrate the preparation of adhesive, specific method of cutting papers and wall papers.</p> <p>15. Demonstrate the pasting of lining paper and state the purpose of lining.</p> <p>16. Demonstrate the pasting and application of wall paper to the wall surface note the principles to be observed in the wall hanging.</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|---|---|
| | | | <p>17. Care and maintenance of tools observed in wall hanging.</p> <ol style="list-style-type: none"> i. Demonstrate the Care and maintenance of tools and equipment based in wall hanging. <ol style="list-style-type: none"> a. All tools and equipment that come in contact with the paste must be cleaned appropriately past board should have the paste on its removed bucket used for the paste thoroughly washed. b. Tools and the equipment should be returned to store and kept in their appropriate places. |
| 20 | <p>Measurement and Specification in Wall hanging</p> <ol style="list-style-type: none"> 1. Identify wall hanging instruments and describe various sizes of wall hanging 2. Calculate the surface areas, quantities of materials and costing a wall hanging job. | <ol style="list-style-type: none"> 1. Instrument used for measuring and setting out projects in wall hanging e.g. <ol style="list-style-type: none"> i. metric rule ii. tape rule iii. scale rule. 2. Area if surface for wall hanging. Standard size of wall hanging e.g. 10.5m x 530mm. British or American and other international standards in general use. 3. Quantities of materials required for a wall hanging job e.g. <ol style="list-style-type: none"> i. Wall hanging. ii. Adhesive iii. Lining papers 4. Cost and estimate e.g. a for a wall hanging job; | <p>Demonstrate methods of measurement by using e.g. metric rule, tape rule, scale rule or wall surface for paper hanging.</p> <p>Measure and calculate the area of surface for wall hanging.</p> <p>Knowledge of calculation is important. The use of measuring tapes. Discuss efficient recording and methods of compiling particulars of measurement. Accurate measurement is essential.</p> <p>18. Discuss wall hangings in general use. 19. State source of supply 20. Samples of wall hanging should be presented and</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|---|---|
| | | consider. i. time ii. material iii. area of surface to be covered iv. labour cost v. profit/overhead. | discuss. 21. State quantities of material required for a wall hanging job by: a. calculating the wall surface to know the quantity of wall paper required. b. Knowing the quantity of adhesive. c. Calculating the quantity of lining paper required. d. Discuss method of estimating for wall and ceiling hangings Insist on careful handling. 22. Discuss the importance of costing before commencing a job. 23. Explain the method of costing a job before it is carried out. 24. Discuss the quantity of material labour cost, profit overhead. Students should know the standard cost of wall hanging per metre. Demonstrate various standard of preparation and working procedure in a job planning and costing. |
| 21 | Preparation for Wall Hanging 1. Identify the components of a building and use scale to make simple drawings. 2. Prepare Colour pattern to specification and substrates | 1. Components of building in given working drawings for wall hanging: i. primary elements e.g. stair cases, wall partitions or cladding Use of scale rule to determine: a. sizes of surfaces to the wall from a given drawing. | 1. Interpretation of simple working drawings in plan and elevation form. 2. Recognition of architectural detail. a. Discuss methods of using the scale rule to determine the size of surface to the wall b. Demonstrate the methods of the use of a scale rule. |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|---|---|
| | for wall hanging. 3. Carry out wall hanging operations. | Use of colour pattern. 2. Substrates for wall hanging e.g. wood, metal plaster. 3. Ideal surface i.e. a. slight porous b. new surfaces c. previously painted surfaces. d. Badly defected surfaces preparation, clean, rub down, burning off solvent removal, stopping and filling priming, undercoating application of appropriate ground colour 4. Operation for wall hanging e.g. a. trim the edge of wall papers. b. Cut wall hanging. c. Match and shade the print d. Set and prepare appropriate adhesive. e. Set scaffold and trestles as appropriate with boards to form a working platform. f. Set paste table in convenient. | c. Knowledge of the interpretation of a given drawing with the use of a scale rule. 3. Discuss the use of BS 4800 colours for building munsell system of colour notation. Prepare substrates for wall hanging e.g. wood, metal plaster. Note: treat according to the condition of each surface, where appropriate, clean , rub down, burn off solvent removal, stop and fill, prime undercoat and apply appropriate ground coat. Emphasize on appropriate treatment of substrate. 4. Discuss operations for wall hanging and state each operation. 5. Demonstrate the method to operate each operation. |
| 22 | Technique in Wall hanging Carry out the techniques in wall hanging operations and observed safety precautions. | 1. Application of adhesive to wallpaper. 2. Folding wall paper, as appropriate. 3. The use of plumb bob and lines. 4. Hang wall paper, avoiding: a. creases b. blisters | Demonstrate the application of adhesive to wallpaper. Note: Use even film of adequate weight avoiding soiling of the face of wall paper, paste table, tools and hands 1. Demonstrate the technique of folding wallpaper and state the method of handling |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|--|---|
| | | <ul style="list-style-type: none"> c. tears d. other defects 5. Cutting wall hangings accurately around. <ul style="list-style-type: none"> i. angles ii. ceiling rose. iii. Socket outlets iv. Fan regulators mounted on the wall etc. 6. Safety precautions associated with wall hanging. | during hanging. Demonstrate the method and technique of hanging the terms: 2. Explain the terms; <ul style="list-style-type: none"> a. crease, b. blisters c. tears d. other defects Demonstrate method of cutting wall hangings around. E.g. angles, ceiling rose, Socket outlets, Fan regulators etc. Discuss safety precautions associated with wall hanging e.g. minor cuts, contact with irritants, accidents etc. |
| 23 | Materials and Equipment for colour Matching <ol style="list-style-type: none"> 1. Identify various colour mixing/matching tools and equipment and their application. 2. Explain the common terms used in colour mixing/matching. 3. State the relationship between the primary and secondary colours of light and pigments | <ol style="list-style-type: none"> 1. Colour mixing/matching tools and equipment and their application. E.g. weighing scale, palette knives, paint kettle, glossometer, paint stirrer (mixing paddle) etc. paint mixer, micro reader. 2. Primary and secondary colours of light, e.g. red, green and blue light secondary e.g. yellow, purple (or magenta) blue green. 3. Relationship between primary and secondary colours of pigments. 4. Common terms used in colour mixing/matching e.g. blue, value, chrome harmony, contrast, tone value, chromatic, natural order, discord, etc. | <ol style="list-style-type: none"> 1. Demonstrate the application of each tools and equipment used in colour mixing/matching. 2. Demonstrate the use of weighing scale, colour metre, micro reader in colour mixing/matching. Cleaning and maintenance of equipment is necessary for their durability. 3. Discuss primary and secondary colours of light 4. Demonstrate the relationship between the primary and secondary colours of light. <ul style="list-style-type: none"> a. Light primaries e.g. red, green and blue. b. Light secondary e.g. yellow, purple blue green. 5. List primary and secondary colours pigment. 6. Primary colour e.g. red, |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|---|---|
| | | | <p>green and blue</p> <p>7. Secondary colours-orange, purple and green. Emphasize the practical experience of colour mixing.</p> <p>8. List the common terms used in colour mixing/matching and discuss them one by one.</p> <p>Insist on the use of colour chart to show the effect of the terms A chart of the colour circle is important.</p> <p>9. Demonstrate the effect of blue value, chrome, harmony, contrast, tone value, chromatic, natural order, discord etc.</p> |
| 24 | <p>Measurement in Colour Mixing/Matching. Apply formulae to produce a secondary colour and colour circle to reduce pigment colour</p> | <p>1. Application of formulae e.g. blue and yellow = green)</p> <p>2. Using colour circle reduce pigment colour e.g. red, blue and yellow</p> <p>3. Paints for producing given colours by using weighing scale.</p> | <p>1. Demonstrate the appropriate formulae to produce a secondary colour.</p> <p>2. Discuss the application of the colour circle to reduce pigment colour.</p> <p>3. Demonstrate the method and formular of using primary colours e.g. red, blue and yellow in obtaining the colour circle. Emphasize the need to have in stock pigmentary primaries.</p> <p>4. The theory and resultant effect of mixing pigmentary primaries to obtain secondary colours and the mixing secondary colours to get tertiary colours.</p> <p>5. Demonstrate method of producing given colour by using weighing scale.</p> <p>6. Discuss the process of weighing weight of each material to produce the</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|---|---|
| | | | required given colour. |
| 25 | <p>Preparation of Materials and Equipment</p> <p>Prepare mixing basis and equipment for colour mixing/matching</p> | <p>1. Basis for colour mixing/matching using colour of pigments and neutrals e.g. black and white.</p> <p>Chemical composition, properties and importance of pigment in paint.</p> <p>Standard colours for building and decorative paints BS 4800 standard range 88 colours.</p> <p>Colour circle-natural and discordant orders.</p> <p>Ten primary colours in munsell colour scale e.g. yellow, green-yellow, green, blue green, blue, purple-blue, purple, red-purple, red, yellow-red.</p> <p>Equipment for colour mixing/matching e.g. paint kettle, micro reader</p> | <p>1. Demonstrate colour mixing/matching using colour of pigments and neutrals black and white.</p> <p>i. opening the containers.</p> <p>ii. Discuss colour theory</p> <p>iii. Demonstrate the method of obtaining secondary colours from primary colours.</p> <p>2. Discuss:</p> <p>a. composition of paint e.g. pigment, media thinner and drier.</p> <p>b. Characteristics of pigment solvent and thinner.</p> <p>c. Type and form of media i.e. solution emulsion and dispersion.</p> <p>d. Properties of paint i.e. elasticity, hardness, spreading power, capacity, adhesion, moisture absorption. Etc.</p> <p>3. Recognized and demonstrate knowledge of the British standard BS colours.</p> <p>4. Discuss and name standard colour for building and decorative paint BS 4800.</p> <p>5. Select and specify paint system for specified tasks.</p> <p>6. discuss the colour circle.</p> <p>7. Demonstrate with the colour circle the natural and discordant orders and discuss it.</p> <p>8. Discuss the ten primary colours in Munsell colour scale given in the chart.</p> |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|---|--|
| | | | <ul style="list-style-type: none"> i. Stirring up the content. ii. Fixing up the content in. 9. Clean up equipment for colour mixing/matching e.g. paint kettle, micro reader. 10. Discuss the method of the use of micro reader and demonstrate the specific use and the focusing to obtain maximum benefit. |
| 26 | Colour Mixing/Matching Outline the safety precautions to be observed in colour Mixing/Matching and match any given colour of paint with another one. | Safety precautions to be observed in colour Mixing/Matching. Safety regulations with regard to colour Mixing/Matching Hazards associated with colour mixing/matching work. E.g. <ul style="list-style-type: none"> i. inhalation of toxic fumes ii. explosion iii. contamination mixing pigmentary colour, yellow, red, blue, white and black under given environment e.g. <ul style="list-style-type: none"> i. day light (natural and artificial) ii. north east light colour matching. | <ul style="list-style-type: none"> 1. Discuss safety regulation with regard to colour Mixing/Matching 2. Discuss specific method to be adopted in Mixing/Matching. <ul style="list-style-type: none"> a. pigment colour b. the lighting requirement. 3. Discuss colour theory in colour Mixing/Matching. 4. Discuss light and pigment <ul style="list-style-type: none"> i. indicate safety regulations with regard to colour Mixing/Matching. 5. Precautions to be taken to avoid inhalation of fumes, explosion and contamination: <ul style="list-style-type: none"> i. Discuss colour theory as related to pigment mixtures of paint. ii. Explain the difference in the resultant effect in mixing pigment colours in day light and north east light. 6. State the method to be adopted when matching a colour. 7. State the safety precautions to be followed. 8. Demonstrate the matching of paint starting from light |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|--|--|---|
| | | | colours and adding deep colour gradually. 9. Discuss why wet mix pigment should be lighter than the colour sample. |
| 27 | <p>Maintenance of Colour Mixing/Matching Tools and Equipment.</p> <p>Explain the solvents for cleaning Colour Mixing/Matching tools and equipment and their maintenance</p> | <ol style="list-style-type: none"> The types of solvent used for cleaning colour mixing/matching tools and equipment e.g. water, turpentine, white spirit, cellulose thinners. Solvent for cleaning tools and equipment after use. E.g. white spirit, care of tools and tidiness of work environment | <ol style="list-style-type: none"> State the composition of solvents used in cleaning colour mixing/matching equipment e.g. water, turpentine, white spirit, cellulose thinners. State characteristics of each solvent and their chemical effect. Emphasize the high inflammable nature of cellulose thinners. Demonstrate the use of white spirit for the cleaning of tools and equipment after use. Discuss the care and equipment of tools and the tidiness of work environment. Take precaution in handling solvents. Emphasize potential hazards in the use of inflammable cleaning solvents. Recognise the tools to be cleaned with appropriate cleaning materials. |
| 28 | <p>Tool Material and Equipment for Glazing.</p> <ol style="list-style-type: none"> Identify glazing tools and equipment, state their basic rules and precautions. State and explain the composition | <ol style="list-style-type: none"> Glazing tools e.g. cutters, hacking knives, putty or glazing knives, hammers, pincers, rules straight edges, tape, screw driver, wire brush T square. Glazing materials <ul style="list-style-type: none"> compositions specific uses. Glasses, glazing compounds, metal casement, putty primers, | <ol style="list-style-type: none"> Recognized, name and compare the tools required to undertake the jobs included in the course content. Recognized and name the glasses in general use. Demonstrate knowledge of safe handling and storage of glasses. Demonstrate the use of equipment. |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|--|--|
| | and specific uses of glazing materials | headless nails spring clips etc. 3. Glazing equipment e.g. step ladders, ladder, trestles scaffold board, table and blankets | 5. Select and list the equipment. 6. Recognise and indicate hazards in the use of equipment in work stations. 7. Care and maintenance of equipment. 8. Prepare and carry out work with due regard to safety working procedures and safety precautions. |
| 29 | Measurement in Glazing Measure the shape of work to be glazed | Work measurement for windows, doors etc - measuring and handling glass | Measures are of a small glazing job 1. Measure area to be glazed; and 2. Area of glass required and cut to size Emphasize accurate measurement. |
| 30 | Cutting Techniques in Glazing. State and explain methods of cutting glass and safety precautions in handling glass. | 1. Precaution in handling glass iii. Carry one pane at a time make sure that the way ahead is clear and free from obstruction. iv. Do not stop suddenly or step backwards when carrying glass sheets. v. Correct carrying technique should be observed etc. 2. Precautionary method in cutting glass e.g. i. Do not exert much pressure or weight on glass to avoid breakage. ii. Avoid cutting in wrong direction iii. Avoid injury to | 1. Know the methods materials and tools used in cutting and fixing glass. 2. Demonstrate knowledge of safe handling correct carrying techniques must be strictly adhered to. 3. Appropriate technique and correct sequence must be observed when cutting glass. 4. Place glass on a flat surface observe correct measure to cut. 5. The cleaning and maintenance of equipment. Simple explanations with demonstration. |

| S/N | Topic/Objective | Contents | Activities/Remarks |
|-----|---|--|--|
| | | body during cutting. | |
| 31 | Surface Preparation in Glazing. 1. Identify the surface and methods of preparing surfaces for glazing. 2. Identify priming materials for glazing | 1. Surface and primer wood, metal, red lead primer. 2. Tools for hacking out broken glass pieces e.g. i. Hacking knife and hammer ii. Glazing knife 3. Casement cleaning using i. Wire brush ii. Sand paper 4. Primer red lead primer | 1. Prepare the surface in case of metal with wire brush and prime with red lead paint. 2. Prepare wooden casement by sand paper and prime with red lead paint. 3. Wire brush in casement 4. Sand paper in case of wooden casement 5. Clean and prime with red lead primer before reglazing. |
| 32 | Glazing Techniques Apply putty on casement and explain the method of cutting, placing and holding glass in position | 1. Application of putty on casement. 2. Glass cutting and placing 3. Method of holding glass in position e.g. using headless nails, sprige. 4. Tools for applying putty e.g. putty knife. | 1. Methods of applying putty to casement window 2. Technique of application of bedding putty 3. Apply bedding putty on casement either metal or wooden 4. Hold glass into position using headless nails in case of wooden casement. 5. Apply the front putty with a putty knife faced at angle to provide proof fillet. Emphasize on handling minimize breakage and avoid injury to the operator. |