WORLDSKILLS STANDARD SPECIFICATION

Skill 36
Car Painting

THE WORLDSKILLS STANDARDS SPECIFICATION (WSSS)

GENERAL NOTES ON THE WSSS

The WSSS specifies the knowledge, understanding and specific skills that underpin international best practice in technical and vocational performance. It should reflect a shared global understanding of what the associated work role(s) or occupation(s) represent for industry and business (www.worldskills.org/WSSS).

The skill competition is intended to reflect international best practice as described by the WSSS, and to the extent that it is able to. The Standards Specification is therefore a guide to the required training and preparation for the skill competition.

In the skill competition the assessment of knowledge and understanding will take place through the assessment of performance. There will not be separate tests of knowledge and understanding.

The Standards Specification is divided into distinct sections with headings and reference numbers added.

Each section is assigned a percentage of the total marks to indicate its relative importance within the Standards Specification. The sum of all the percentage marks is 100.

The Marking Scheme and Test Project will assess only those skills that are set out in the Standards Specification. They will reflect the Standards Specification as comprehensively as possible within the constraints of the skill competition.

The Marking Scheme and Test Project will follow the allocation of marks within the Standards Specification to the extent practically possible. A variation of five percent is allowed, provided that this does not distort the weightings assigned by the Standards Specification.

WORLDSKILLS STANDARDS SPECIFICATION

SECTION		RELATIVE IMPORTANCE (%)
1	**Work organization and management**	**5**
	The individual needs to know and understand: • Current occupational health and safety regulations related to the car painting industry • Correct use, storage and maintenance of personal protective equipment and clothing • All recommendations and information published by the supplier or manufacturer of products and equipment • The procedures and process for maintaining and using specialist equipment • Terminology that relates to paint materials, processes and applications • The importance of the correct handling and disposal of environmentally harmful products • The potentially harmful impact car painting products can have on the environment • The impact that the environment and climate can have on paints and products	

	The individual shall be able to: • Apply occupational health and safety regulations and best practice related to the car painting industry • Use correctly and maintain personal protective clothing and equipment • Set-up, use, adjust and maintain all specialist application equipment • Set up, adjust and use all specialist preparation and drying equipment • Promote health and safety in the workplace • Apply all recommendations and guidance provided by suppliers and manufacturers of equipment or products • Adhere to MSDS (Manufacturers Safety Data Sheets) • Adopt correct procedures for handling and disposal of environmentally harmful products • Only use products that are Volatile Organic Compound (VOC) compliant • Adapt the materials to take account of the impact of the environment and climate on paints and products • Maintain a clean spraying environment within the paint area	
2	**Preparation for Painting**	**15**

	The individual needs to know and understand:
	• The range, purpose and application of products used in the car painting industry for the following procedures:
	  • Cleaning
	  • Removal of contaminants
	  • Repairing minor panel and paint damage
	  • Abrading and final cleaning
	  • Other surface contaminants
	  • Removal of dust from all areas to be finished
	  • Protection of parts and areas not being painted	

	The individual shall be able to: • Use appropriate cleaning products to remove contaminants • Prepare surfaces to be coated with the appropriate abrasive products • Carry out minor panel repairs • Carry out final cleaning of the surface prior to paint application • Remove dust from all areas to be refinished • Suitably remove other contaminates such as glues, labels and sealers • carry out proper masking procedures to protect surrounding areas	
3	**Application of Adhesion Promoters and Primers**	**12**
	The individual needs to know and understand: • Range of adhesion promoters and primers available • Purpose of adhesion promoters and primers • The context of where and when various adhesion promoters and primers are used • Mixing and application techniques for each of the adhesion promoters and primers • The preparation and application process for the full range of seam sealers, e.g. gap sealers, weld sealers, seam sealers etc. • Which materials to select for a particular application • The drying characteristics of each adhesion promoter or primer	

	The individual shall be able to:
	• Apply suitable primers and or fillers to the substrate and appropriate for the process being used:
	  • Etch primers
	  • Primer surfaces
	  • Primer fillers
	  • Plastic primers
	• Apply the correct procedures for sanding (flatting) primer fillers
	• Reinstate the corrosion protection of the panels being painted
	• Apply seam sealers
	• Follow the original engineering manufacturer (OEM) or paint manufacturer's (Technical Data Sheet – TDS) recommendations
	• Measure out materials carefully to minimize environmental effects and cost implications	

4	**Base Coat and Ground Coat Application**	**17**
	The individual needs to know and understand: • How to access information related to colour and application • Types and specifications of car paints and their uses • Warranty procedures applied to particular vehicles • The correct use of equipment used in applying base coats and ground coats • Specialist paint finishes • The impact upon cost and environment of over mixing materials	
	The individual shall be able to: • Retrieve colour and application information from printed and electronic sources • Use appropriate equipment and technology to access colour formulations (computer based and/or photo spectrometer) • Use colour swatches/chips to identify the correct colour and shade and variant • Apply the electronic information to mix required colour and shade • Follow the correct procedure to spray out a test paint card and compare with the original standard, adjust as necessary • Mix and apply straight/solid colours, metallic, pearls, 3-stage pearls and special effect colours • Apply base/ground coats to metal and non-metal parts • Follow the original engineering manufacturer (OEM) or paint manufacturer's (Technical Data Sheet – TDS) recommendations • Measure materials to minimize the environmental and cost factors	
5	**Clear Coat Application**	**18**
	The individual needs to know and understand: • The purpose of a clear coat • The process for identifying, mixing and applying clear coats • The importance of following manufacturer's instructions • The need for flexible additives as required • The spray gun set up and adjustment for clear coat materials • The correct gun pressure, speed, distance and overlap required to produce an excellent finish with clear coats and achieve high gloss levels	

	The individual shall be able to: • Identify, mix and apply clear coats correctly • Adjust spray gun to achieve the correct outlet pressure, fan width and fan shape. • Apply clear coats to achieve gloss and structure to match existing finishes • Apply clear coats as per paint manufacturer's instructions to avoid defects such as runs, excessive orange peel etc. • Follow the original engineering manufacturer (OEM) or paint manufacturer's (Technical Data Sheet – TDS) recommendations • Dispose of unused clear coat in an environmentally safe manor	
6	**Colour Evaluation and Colour Adjustment**	**12**
	The individual needs to know and understand: • Colour technology and colour adjustment techniques (Munsel Colour Wheel) • Technical terms and definitions for colour descriptions • The effects of colour miss-match in terms of face and flop tone • The effects of varying strengths and values of toners • The impact of light quality and type on colour • The impact of spraying techniques upon colour match	
	The individual shall be able to: • Locate and document vehicle manufacturer's paint code • Determine type and colour of paint using the manufacturer's paint code and vehicle information • Evaluate spray-out card against the standard to identify colour miss-match in terms of hue, chroma, saturation, lightness and darkness • Select and apply suitable procedures to adjust colour to match the given standard • Select toners to correct colour miss-match • Identify and use the correct lighting to match colour • use the correct gun speed, distance and overlap to produce quality spray out cards	
7	**Design, Layout and Measurement**	**13**
	The individual needs to know and understand: • Basic geometry • Appropriate materials for masking different areas • Uses of different types of masking materials • How to selection and use of specialist measuring and marking out equipment e.g. beam compass, rules, straight edges etc. • Techniques for applying decals/transfers • The use and maintenance of air brushes and mini spray guns	

	The individual shall be able to: • Interpret dimensions and shapes from a given drawing • Use the correct tools and techniques to transfer and layout the drawing information/specification to the appropriate panels • Measure accurately to ensure that the design meets the exact specifications • Draw arcs and circles using drafting tools such as a beam compass • Mask areas of the vehicle panels for the prevention of overspray between colours for design painting • Mask and protect adjacent panels that will not be refinished • Perfectly apply vinyl decals/transfers to a given location without creases, bubbles, cuts etc. • Mask door jambs and other aperture panels • Mask for design painting • Apply freehand design work using an air brush • Apply a range of decorative special effects including blended colours	
8	**Remove Minor Damage and Defects from Painted and Non-Painted Surfaces**	**8**
	The individual needs to know and understand: • Types of specialist defects • The correct procedure to rectify minor paint damage or defects • The procedures and materials required to rectify minor panel damage • Techniques and materials for removal and repair of minor paint defects and damage • Techniques to invisibly spot repair or blend paint in confined areas	
	The individual shall be able to: • Identify the types of defects that may occur on a painted surface such as nibs, pin holes, runs, environmental effects etc. • Apply the correct procedures to remove or repair paint defects • Carry out 'smart' repairs to small areas of damage • Evaluate the extend of minor panel damage and plan work accordingly to rectify this damage • Wet and dry sand clear coat to remove and rectify defects • Apply polyester and epoxy fillers and stoppers to repair small stone chip damage to panel surfaces • Prepare and blend invisibly scratch and scuff damage • Reinstate the original gloss levels using polishing techniques and materials	