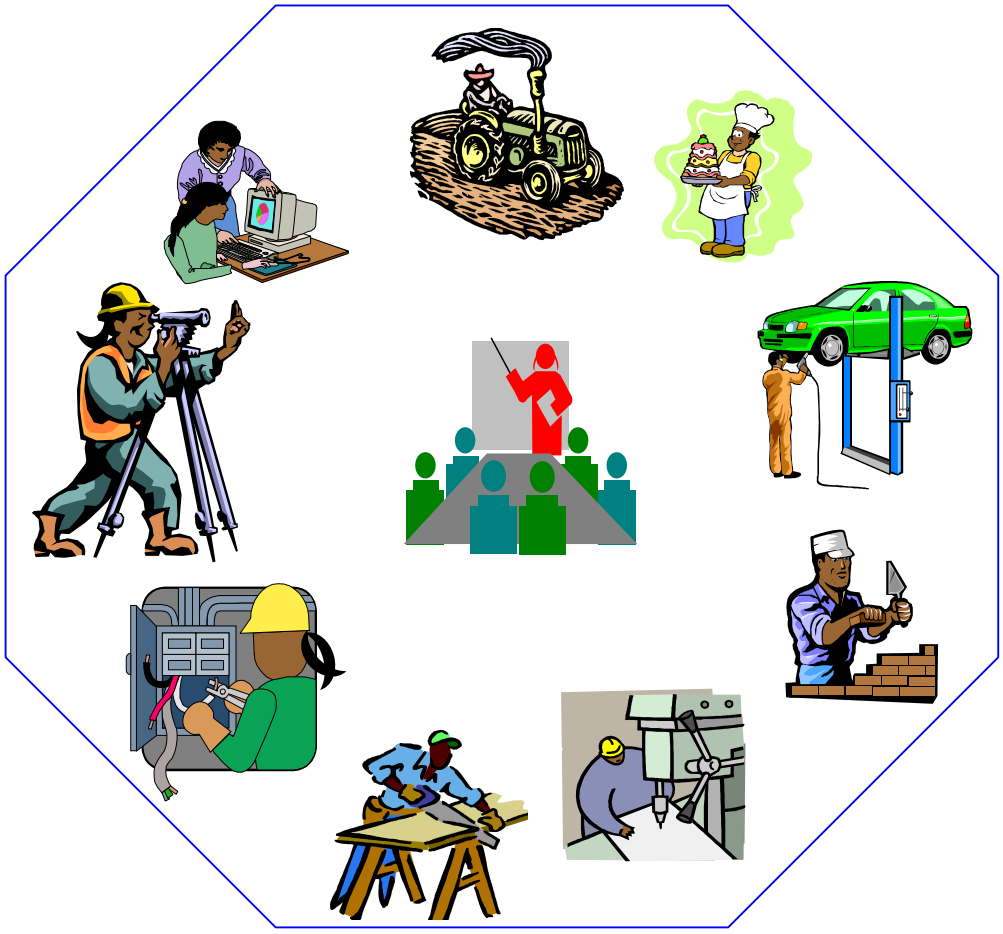
Federal Democratic Republic of Ethiopia
OCCUPATIONAL STANDARD

BOGIE PRODUCTION AND ASSEMBLY

NTQF Level I-II



Ministry of Education
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Introduction

Ethiopia has embarked on a process of reforming its TVET-System. Within the policies and strategies of the Ethiopian Government, technology transformation – by using international standards and international best practices as the basis, and, adopting, adapting and verifying them in the Ethiopian context – is a pivotal element. TVET is given an important role with regard to technology transfer. The new paradigm in the outcome-based TVET system is the orientation at the current and anticipated future demand of the economy and the labor market.

The Ethiopian Occupational Standard (EOS) is the core element of the Ethiopian National TVET-Strategy and an important factor within the context of the National TVET-Qualification Framework (NTQF).They are national standards, which define the occupational requirements and expected outcome related to a specific occupation without taking TVET delivery into account.

This document details the mandatory format, sequencing, wording and layout for the Ethiopia Occupational Standard which comprised of Units of Competence.

A Unit of Competence describes a distinct work activity. It is documented in a standard format that comprises:

- Occupational title, NTQF level
- Unit title
- Unit code
- Unit descriptor
- Elements and Performance criteria
- Variables and Range statement
- Evidence guide

Together all the parts of a Unit of Competence guide the assessor in determining whether the candidate is competent.

The ensuing sections of this EOS document comprise a description of the occupation with all the key components of a Unit of Competence:

- chart with an overview of all Units of Competence for the level including the Unit Codes and the Unit of Competence Titles
- contents of each Unit of Competence listed in the chart
- occupational map providing the Technical and Vocational Education and Training (TVET) providers with information and important requirements to consider when designing training programs for this standards and for the individual, a career path

UNIT OF COMPETENCE CHART

Occupational Standard: Bogie and Body Production/Assembly Support Work

Occupational Code: IND BPS

NTQF Level I

IND BBS1 01 0117 Apply Train Manufacturing Workplace Safety Fundamentals	**IND BBS1 02 0117** Perform Emergency First Aid	**IND BBS1 03 0117** Use and Maintain Tools and Equipment
IND BBS1 04 0117 Identify Environmental Requirements in Train Manufacturing Workplace	**IND BBS1 05 0117** Perform Measurements	**IND BBS1 06 0117** Interpret Technical Drawing
IND BBS1 07 0117 Perform Routine Gas Metal Arc Welding	**IND BBS1 08 0117** Apply Basic Communication Skills	**IND BBS1 09 0117** Apply Train Mechanical System Fundamentals
IND BBS1 10 0117 Apply Train Manufacturing Electrical System Fundamentals	**IND BBS1 11 0117** Shift Materials Safely Using by Hand Manual Handling Methods	**IND BBS1 12 0117** Clean Workplace or Equipment
IND BBS1 13 0117 Produce Drawings Manually	**IND BBS1 14 0117** Perform General Machining	**IND BBS1 15 0117** Perform Basic Welding, Thermal Cutting, Heating and Gouging
IND BBS1 16 0117 Perform Mechanical Cutting	**IND BBS1 17 0117** Work Effectively in Teams	**IND BBS1 18 0117** Operate a Personal Computer
IND BBS1 19 0117 Apply Quality Standards	**IND BBS1 20 0117** Work with Others	**IND BBS1 21 0117** Receive and Respond to Workplace Communication

IND BBS1 22 0117 Demonstrate Work Values	**IND BBS1 23 0117** Develop Understanding of Entrepreneurship	**IND BBS1 24 0117** Apply 3S

NTQF Level II

IND BBS2 01 0117 Read and Interpret Engineering Drawings	**IND BBS2 02 0117** Contribute to Production Goals	**IND BBS2 03 0117** Read and Use Numbers in a Train Workplace
IND BBS2 04 0117 Contribute to Quality Work Outcomes	**IND BBS2 05 0117** Apply Safe Working Practices in Train Manufacturing Workplace	**IND BBS2 06 0117** Identify Basic Body Faults Using Troubleshooting Processes
IND BBS2 07 0117 Carry out Gas Metal Arc Welding Procedures	**IND BBS2 08 0117** Carry out Manual Metal Arc Welding Procedures	**IND BBS2 09 0117** Conduct Oxy-acetylene, Thermal Heating and Cutting
IND BBS2 10 0117 Fabricate Parts for Vehicle Sub-assemblies	**IND BBS2 11 0117** Carry out Spot Welding Procedures	**IND BBS2 12 0117** Use Materials and Process Knowledge to Complete Work Operations
IND BBS2 13 0117 Demonstrate Knowledge of Petrol and Diesel Engine Operation	**IND BBS2 14 0117** Apply Knowledge of Engine Science	**IND BBS2 15 0117** Participate in Workplace Communication
IND BBS2 16 0117 Work in Team Environment	**IND BBS2 17 0117** Develop Business Practice	**IND BBS2 18 0117** Standardize and Sustain 3S

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Apply Train Manufacturing Workplace Safety Fundamentals**
Unit Code	**IND BBS1 01 0117**
Unit Descriptor	This unit describes the performance outcomes required to identify basic safety and emergency procedures that are used to maintain a safe train manufacturing workplace. Work involves the theory and knowledge related to fundamental safety and emergency issues in train manufacturing workplace. Performance of work tasks that take in to consideration automotive workplace safety and emergency procedures may be applied in the application of the unit.

Elements	Performance Criteria
1. Identify basic workplace safety practices and procedures	1.1 Reasons for safe work practice in train manufacturing workshop are identified and determined 1.2 Responsibilities of staff in train manufacturing workshop are identified 1.3 Worksite ***policies and procedures*** are identified to achieve a safe working environment 1.4 ***Workplace Health and Safety (WHS) requirements***, including personal safety needs, are identified and applied 1.5 Potential unsafe workplace situations are recognised 1.6 Fire and safety ***hazards*** and precautions are identified 1.7 Dangerous goods and substances, including storage and safe handling, are identified
2. Identify emergency procedures	2.1 Location of worksite ***emergency procedures*** is identified and referred to 2.2 Safety alarms are identified 2.3 Fire fighting equipment and appliances are identified 2.4 Qualified persons to be contacted in the event of accident or sickness of customers or staff are identified 2.5 Worksite evacuation procedures are identified and applied

Variable	Range
Policies and procedures	may include:

	• job procedures and work instructions • safe working practices • enterprise operating procedures • hazard policies and procedures • emergency, fire and accident procedures • personal safety procedures • Procedure for the use of personal protective clothing and equipment.
WHS requirements	may include: • personal protective clothing and equipment • worksite documentation for WHS • industry or workplace codes of practice • Emergency / incident signage or instructions.
Hazards	may include: • sharp cutting tooling and instruments • electricity and water • toxic substances • damaged packing material or containers • broken or damaged equipment • flammable materials and fire hazards • lifting practices • spillages • Waste and debris especially on floors, ladders, and trolleys glue guns/burns.
Emergency procedures	may include: • sickness or accident reporting procedure • fire or workshop evacuation involving staff or customers • Environmental incidents / accidents involving harmful or hazardous substances.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to. • communicate safety matters effectively with others in train manufacturing workplace • identify WHS requirements in the train manufacturing workplace such as Personal Protective Equipment (PPE) • identify hazardous situations, and report to the relevant persons • Identify safe handling and storage of dangerous and/or hazardous goods and substances follow worksite emergency and evacuation procedures.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • WHS procedures and requirements, equipment, material and personal safety requirements relating to train manufacturing workplace safety

	• location and identification of fire-fighting appliances • dangerous goods and hazardous chemicals handling and storage practices • worksite emergency and evacuation procedures
Underpinning Skills	Demonstrate skills of: • understanding basic workplace safety-related procedures • reading and following information on written instructions • identifying and understanding information relating to recognising and reporting situations • planning and organising skills to: ➢ identify risk factors to minimise risk to self and others ➢ contribute to activities which implement and follow standard safety procedures • problem-solving skills to: ➢ recognise a workplace problem or a potential problem ➢ refer problems outside area of responsibility to appropriate person ➢ identify, document and report numbers for emergency procedures • self-management skills to: ➢ locate and identify appropriate safety equipment ➢ recognise limitations and seek timely advice ➢ follow basic workplace documentation, such as operating and safety procedures • teamwork skills to work with others and in a team by cooperating with team members • technical skills to understand technical information relating to recognising and reporting unsafe situations • technology skills to use workplace safety-related technology to assist with safe work practices
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Perform Emergency First Aid**
Unit Code	**IND BBS1 02 0117**
Unit Descriptor	This unit covers performing basic emergency first aid, EAR (expired air resuscitation) and CPR (cardiopulmonary resuscitation).

Elements	Performance Criteria
1. Perform emergency first aid	1.1. Correct procedures for EAR (expired air resuscitation) and CPR (cardiopulmonary resuscitation) are demonstrated on a mannequin. 1.2. First aid treatment of ***injuries*** is carried out correctly.
2. Record and report emergency	2.1 Details of first aid administered are accurately recorded. 2.2 Understanding of relevant regulatory and legislative requirements is demonstrated.

Variable	Range
Injuries	May include burns/scalds, fractures, cuts and abrasions, poisoning, foreign bodies in eyes, concussion and shock

Evidence Guide	
Critical Aspects of Competence	Demonstrate knowledge and skills to: • procedures for performing EAR and CPR on a child and an adult • dangers and precautions to be taken when administering EAR and CPR • emergency first aid procedures for injuries covered by the scope of this unit • details to be recorded of first aid administered • procedures and reasons for recording first aid administered • relevant regulatory and legislative requirements with respect to emergency first aid • the impact of regulatory/legislative requirements on the individual and others • safe work practices and procedures
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • applicable regulatory and legislative requirements • use and application of any applicable personal protective equipment • hazards and control measures associated with performing emergency first aid, including housekeeping • instances where EAR and CPR should be performed • procedures for preparing a person for the administration of EAR and CPR

Underpinning Skills	Demonstrate skills of: • planning and sequencing operations • checking and clarifying task-related information • performing EAR (expired air resuscitation) and CPR (cardiopulmonary resuscitation) on a mannequin • simulated first aid treatment for the full range of injuries covered by the range statement • reading, interpreting and following emergency first aid procedures and related documents • entering information onto performance and other relevant documents • communicating effectively with injured persons, appropriate personnel and authorities
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Use and Maintain Tools and Equipment**
Unit Code	**IND BBS1 03 0117**
Unit Descriptor	This unit covers knowledge, skills and attitudes required to select and use tools and equipment to complete tasks under direct supervision in train environment. It also involves undertaking their basic maintenance and reporting any faults.

Elements	Performance Criteria
1. Select tools and equipment	1.1 ***Workplace procedures*** relevant to the use of tools and equipment are identified and applied 1.2 Work instructions are identified and clarified 1.3 Appropriate tools and equipment are selected as required by work instructions
2. Use tools and operate equipment	2.1 Tools and equipment are checked to ensure they are correct and safe to use according to workplace procedures, and any identified faults are reported 2.2 Tools and equipment are used according to WHS requirements, manufacturer instructions and workplace procedures
3. Maintain tools and equipment	3.1 Basic maintenance of tools and equipment is carried out according to manufacturer specifications and workplace procedures 3.2 Tool and equipment maintenance records are completed
4. Complete work processes	4.1 Tools and equipment are shut down and stored according to workplace procedures 4.2 Work area is cleaned according to workplace procedures

Variable	Range
Workplace procedures	must include: • maintenance of tools • use of tools and equipment • Work Health and Safety (WHS) requirements • Workplace recording and reporting.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • follow tool and equipment maintenance procedures • select and check the correct tool or equipment required for the task

	• use and maintain tools or equipment according to WHS requirements and manufacturer instructions • undertake basic maintenance tasks while following instructions • communicate tool and equipment faults to appropriate people • shut down and store tools and equipment • Clean work area.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • WHS requirements relating to using and maintaining tools, equipment and material • types, uses and limitations of train tools and equipment, and techniques for their use • procedures for checking tools and equipment • basic maintenance procedures relating to tools and equipment • Shut-down, handling and storage procedures of tools and equipment.
Underpinning Skills	Demonstrate skills of: • Reading skills to: ➢ Interpret instructions, workplace procedures and manufacturer specifications. • Oral communication skills to: ➢ Communicate with supervisor to clarify instructions. • Problem-solving skills to: ➢ Select the correct tool or equipment required for the task.
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Identify Environmental Requirements in Train Manufacturing Workplace**
Unit Code	**IND BBS1 04 0117**
Unit Descriptor	This unit describes the performance outcomes required to identify environmental requirements and sustainability practices to be aware of potential environmental hazards in train manufacturing workplace. Work involves the theory, knowledge and the limited application of skills related to fundamental environmental and sustainability issues in train manufacturing workplace. Performance of work tasks that maintain sustainability and environmental considerations may be applied in the application of the unit.

Elements	Performance Criteria
1. Identify environment regulations and practices	1.1. Reasons for ***ethical environmental practice*** in train manufacturing workshop are identified 1.2. Environmental responsibilities of staff in train manufacturing workshop are identified 1.3. ***Documents and procedures*** relevant to environmental safety and ***hazards*** are located and reviewed 1.4. Penalties for individual breaches of legislation are identified and determined 1.5. ***Safety equipment and other material*** necessary to support environmentally sound practices are located and identified
2.Identify hazards to storm water and wastewater drainage system	2.1. Actions are identified in relation to controlling waste water or ***prescribed wastes*** entering either stormwater or wastewater drainage systems 2.2. Storage methods for parts and components containing environmentally hazardous materials are identified 2.3. Recycling and storage procedures for liquid wastes are identified 2.4. Uses of a spill kit are identified and confirmed 2.5. Procedures are identified to keep workplace
3.Identify hazards to air quality	3.1. Hazards of airborne particles and methods to minimise and contain them are identified 3.2. Hazards of gases and fumes and methods to minimise and contain them are identified

4.Identify noise hazards	4.1. Effects of noise creating activities and methods to minimise these are identified
5.Identify sustainability practices	5.1. ***Sustainability practices*** are identified to minimise waste and sort and store items for recycling or disposal 5.2. Methods to reduce resource consumption (water, electricity, fossil fuels, chemicals) are identified

Variable	**Range**
Ethical environmental practice	may include conformance to legislative guidelines and obligations hazardous materials handling best practice applications organisation insurance requirements discretion, judgement and problem-solving skills in undertaking environmentally sound work practices.
Documents and procedures	may include: • environmental legislation • Material Safety Data Sheets (MSDS) • hazardous substances register • workplace environmental procedures and safety instructions • dangerous goods code safe operating procedures.
Hazards	may include: • toxic fumes and substances • flammable materials and fire hazards • spillages • waste and debris especially on floors, ladders, trolleys • electricity and water • toxic substances • damaged packing material or containers • broken or damaged equipment • Unsafe lifting practices.
Safety equipment and other material	may include • PPE including: ➢ eye protection ➢ hearing protection ➢ gloves ➢ other suitable protective clothing ➢ safety footwear • materials: ➢ spill kit ➢ absorbent materials ➢ drip and catchment trays ➢ waste bags ➢ Waste segregation systems.
Prescribed wastes	may include: • solid or liquid wastes • oil, fuel and grease

	• hydrocarbon based degreasing agents and solvents • acids • alkaline wastes • paint, lacquer, varnish • glues and adhesive compounds • Household chemicals and pesticides.
Sustainability practices	may include: • recycling waste • energy conservation practices • natural resources (water, etc.) conservation practices • reusing • environmental (green) purchasing practices • Noise minimisation.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • demonstrate knowledge of environmental regulations and best practice as they would apply in train manufacturing workplace or business • identify materials used in an train business and assess their environmental impact • Identify sustainability practices in train manufacturing workplace.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • aspects of environmental legislation and its implications for work being undertaken in train manufacturing business • characteristics and potential environmental impact of products used in the train manufacturing industry • philosophy of prevention, reuse, reduce, recycle • procedures for use of spill kit • effects of pollution and mitigation methods
Underpinning Skills	Demonstrate skills to: • communication skills to: ➢ communicate verbal and written ideas and information relating to environmental issues of an train workplace • initiative and enterprise to: ➢ identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding ➢ participate in self-improvement activities • literacy skills to: ➢ read and interpret workplace environmental procedures ➢ read and interpret information in written instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable

	reference documents ➢ numeracy skills to measure and calculate length, area and volume • planning and organising skills to: ➢ identify risk factors and actions to minimise risk ➢ identify planning, checking and inspection techniques to avoid environmental contamination and wastage • problem-solving skills to: ➢ recognise a workplace problem or a potential problem ➢ refer problems outside area of responsibility to appropriate person and suggest possible causes ➢ identify processes which contribute to improvements for environmental issues • self-management skills to: ➢ identify appropriate safety and environmental response equipment, materials, processes and procedures ➢ recognise limitations and seek timely advice ➢ identify and follow workplace documentation, such as environmental codes of practice and operating procedures • teamwork skills to collaborate and cooperate with other team members • technical skills to: ➢ collect, organise and interpret technical information relating to recognising workplace situations that are potentially harmful to the environment • technology skills to use workplace environmental safety-related technology to assist with clean and safe work practices
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Perform Measurements**
Unit Code	**IND BBS1 05 0117**
Unit Descriptor	This unit covers performing measurement skills requiring straightforward use of mechanical measuring devices and associated calculations.

Elements	Performance Criteria
1. Select appropriate device or equipment	1.1. Measurement requirements are determined from ***specifications***. 1.2. Appropriate device or equipment is selected according to standard operating procedures, to achieve required outcome.
2. Obtain measurements using a range of measuring devices	2.1. Correct and appropriate measuring technique is used. 2.2. ***Measurements*** are accurately obtained . 2.3. Dimensions are determined or verified using ***basic calculations***, where required.
3. Maintain measuring devices	3.1. Routine care and storage of devices is undertaken to manufacturers' specifications or standard operating procedures. 3.2. ***Routine adjustments*** to devices are made and checked.
4. Communicate measurements as required	4.1. Measurements are accurately recorded, where required. 4.2. Freehand sketch which depicts required ***information*** is prepared, as required.

Variable	Range
Specifications	May include: • Drawings, sketches, job instructions, schematics, diagrams, technical manuals
Measurements	May include: • Measuring length, squareness, flatness, angle, roundness, clearances or any other measurements that can be read off analog, digital or other measuring device
Basic calculations	May include: • assist in determining measurements where a reading of the graduated device is not sufficient, for example subtracting one measurement from another to give a third measurement. Examples of calculations needed are addition, subtraction, multiplication, division, fractions and decimals.

	• may be made using a calculator
Routine adjustments	May include validating the device using simple zeroing or scale adjustment
Information	May include dimensions, instructions, base line or datum points
Range of measuring devices	May include: • Protractors, combination squares, set squares, dial indicators, thermometers, tapes, rules, micrometres, Vernier-scaled measuring equipment

Evidence Guide	
Critical Aspects of Competence	Demonstrate knowledge and skills to: • reading, interpreting and following information on written job instructions, • selecting the appropriate measuring device for given measuring tasks
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • correct application of a range of measuring devices • correct and appropriate measuring technique for a range of measuring devices • addition, subtraction, multiplication, division, fractions, decimals to the scope required by this unit • procedures for handling and storing a range of measuring devices • procedures for adjusting and zeroing a range of measuring devices • methods of communicating measurements by drawings, as required • safe work practices and procedures
Underpinning Skills	Demonstrate skills of: • using appropriate measuring technique • reading all measurements taken accurately to the finest graduation of the selected measuring device • handling and storing measuring devices in accordance with manufacturers' specifications or standard operating procedures • verifying all measuring devices before use • making, where appropriate, routine adjustments to measuring devices
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Interpret Technical Drawing**
Unit Code	**IND BBS1 06 0117**
Unit Descriptor	This unit covers interpreting technical drawing applying to any of the full range of engineering disciplines Technical drawings may utilise perspective, exploded views or hidden view techniques. Technical drawings may include symbol glossaries. Where any drawing, sketch, chart, diagram is only used as the technique for communication, then this unit does not apply.

Elements	Performance Criteria
1. Select correct technical drawing	1.1. Drawing is checked and validated against job requirements or equipment. 1.2. Drawing version is checked and validated.
2. Interpret technical drawing	2.1. Components, assemblies or objects are recognised as required. 2.2. Dimensions are identified as appropriate to field of employment. 2.3. Instructions are identified and followed as required. 2.4. Material requirements are identified as required. 2.5. Symbols are recognised in the ***Interpret technical drawing*** as appropriate.

Variable	Range
Interpret technical drawing	May include: • is an extensive work and the candidate is not required to have complete familiarity with all its contents, the application of AS1100 would usually be in line with standard operating procedures; interpretation may require guidance particularly in respect to any geometric tolerance

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • checking the drawing against job requirements/related equipment in accordance with standard operating procedures • understanding of the instructions contained in the drawing • the actions to be undertaken in response to those instructions

Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • relationship between the views contained in the drawing • objects represented in the drawing • units of measurement used in the preparation of the drawing • dimensions of the key features of the objects depicted in the drawing • the materials from which the object(s) are made • any symbols used in the drawing as described in range statement • hazard and control measures associated with interpreting technical drawings, including housekeeping • safe work practices and procedures
Underpinning Skills	Demonstrate skills of: • confirming the drawing version as being current in accordance with standard operating procedures • where appropriate, obtaining the current version of the drawing in accordance with standard operating procedures • reading, interpreting information on the drawing, written job instructions, specifications, standard operating procedures, charts, lists and other applicable reference documents • checking and clarifying task related information • undertaking numerical operations, geometry and calculations/formulae within the scope of this unit
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Perform Routine Gas Metal Arc Welding**
Unit Code	**IND BBS1 07 0117**
Unit Descriptor	This unit covers preparing materials and routine Gas Metal Arc Welding (GMAW).

Elements	Performance Criteria
1. Identify weld requirements	1.1. Weld requirements are identified from job instructions. 1.2. Locations of welds are identified in according to standard operating procedures and job specifications.
2. Prepare materials for welding	2.1. ***Materials*** are cleaned and ***prepared*** ready for welding.
3. Prepare equipment for welding	3.1. Welding ***equipment*** is set up correctly. 3.2. Settings and ***consumables*** are selected to suit application.
4. Perform routine welding using GMAW	4.1. Safe welding practices are applied. 4.2. Materials are welded to job requirements. 4.3. Welds are ***cleaned*** to standard operating procedures.

Variable	Range
Materials	May include: • Mild and low carbon steel
Prepared	May include: • Preheating, setting up jigs, fixtures, clamps, joint preparation
Equipment	May include: • Hoses, welding leads, gas shrouds, gas regulators, liners, contact tips
Consumables	May include: • Filler wire and shielding gas
Cleaning	May include slag and spatter

Evidence Guide	
Critical Aspects of Competence	Demonstrate knowledge and skills to: • fuel gas properties and applications • post-welding treatments • weld characteristics • safe welding practices • use and application of personal protective equipment for routine GMAW
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Different current and voltage settings, gas flow rates wire diameters, wire feed speed and other variables to suit typical situations.

	• material and equipment preparation • properties and characteristics of materials and consumables • equipment and equipment settings
Underpinning Skills	Demonstrate skills of: • preparing materials • setting up welding equipment • welding with GMAW • reading and interpreting routine information on written job instructions, specifications and standard operating procedures • following oral instruction • using measurement skills relating to joint preparation and routine GMAW
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Apply Basic Communication Skills**
Unit Code	**IND BBS1 08 0117**
Unit Descriptor	This unit describes the performance outcomes, skills and knowledge required to develop communication skills in the workplace. It covers gathering, conveying and receiving information, along with completing assigned written information under direct supervision. This unit applies to individuals developing basic skills and knowledge of workplace communication in preparation for working in a broad range of settings.

Elements	Performance Criteria
1. Identify workplace communication procedures	1.1. Organisational communication requirements and ***workplace procedures*** are identified with assistance from ***appropriate people***
	1.2. Appropriate ***lines of communication*** are identified with supervisors and colleagues
	1.3. Advice on the ***communication method/equipment*** most appropriate for the task is sought
2. Communicate in the workplace	2.1. Effective questioning, and active listening and speaking skills are used to gather and convey information
	2.2. Appropriate non-verbal behaviour are used at all times
	2.3. Constructive feedback is encouraged, acknowledged and acted upon
3. Draft written information	3.1. Relevant procedures and formats are identified for written information.
	3.2. Assigned ***written information*** is drafted and presented for approval, ensuring it is written clearly, concisely and within designated timeframes
	3.3. Ensure written information meets required ***standards*** of style, format and detail
	3.4. Assistance and/or feedback is/are sought to aid communication skills development

Variable	Range
Workplace procedures	may include: • answering telephone calls • following instructions • informal discussions • requests from colleagues

	• using internet and email • using voice mail • workplace procedures related to specific tasks
Appropriate people	may include: • colleagues • other staff members • supervisors, mentors, trainers or assessors
Lines of communication	may include: • formal and informal means • verbal or written
Communication method/equipment	may include: • computer network systems • facsimile machines • personal computer equipment including hardware, keyboards, software and communication packages • telephones
Written information	may include: • electronic mail • facsimiles • general correspondence or standard/form letters and memos • handwritten and printed materials • telephone messages or general messages
Standards	may include: • organisational policies • standards set by workgroup

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • literacy skills to identify work requirements, to draft written information and to process basic, relevant workplace documentation
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • key provisions of relevant legislation from all forms of government that may affect aspects of business operations, such as privacy laws • organisational policies, plans and procedures
Underpinning Skills	Demonstrate skills of: • communication skills to identify lines of communication, to request advice, to effectively question, to follow instructions, to receive feedback, and to convey messages clearly and concisely • culturally appropriate communication skills to relate to people from diverse backgrounds and to people with diverse abilities • Problem-solving skills to solve routine problems related to the workplace, under direct supervision.

Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be accessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Apply Train Mechanical System Fundamentals**
Unit Code	**IND BBS1 09 0117**
Unit Descriptor	This unit describes the performance outcomes required to demonstrate basic knowledge and awareness of train terminology and mechanical terms and principles as they apply to vehicle mechanical systems, components and technologies found in modern motor vehicles Work applies to light vehicles and is based on demonstrating knowledge of systems and components function, location and operation, as well as an understanding of basic train mechanical terminology.

Elements	Performance Criteria
1. Identify mechanical fundamentals	1.1. Suitable relevant ***sources of information*** are located to assist with mechanical fundamentals research 1.2. General train mechanical system fundamentals are identified in relation to modern vehicle platforms 1.3. Mechanical terminology and operating principles of systems and components are referred to and identified for a particular application
2. Identify operation of system or component	2.1. Component or system to be researched is identified 2.2. Information is researched to ensure sufficient understanding of component or system to assist with its further identification and application 2.3. Potential for unsafe conditions or ***safety hazards*** is identified
3. Locate system or component on vehicle	3.1. Suitable ***train systems and components*** are sourced to assist with task 3.2. Location of system or component is confirmed in relation to modern vehicle configuration
4. Apply mechanical fundamentals	4.1. ***Workplace Health and Safety (WHS) requirements*** are observed and applied throughout the work 4.2. System or component is examined and sub-assembly components are identified 4.3. Method of operation is determined to confirm principles of system or component function 4.4. System or component relationship to light vehicle operation is determined 4.5. Potential ***common faults*** with system or component are identified

Variable	Range
Sources of information	may include: • vehicle workshop manuals • service bulletins • Train texts • magazine technical articles • Written instructions documented workplace procedures.
Safety hazards	may include: • electricity and water • toxic substances • broken or damaged equipment • flammable materials and fire hazards • lifting practices • Spillages.
Train systems and components	may include: • bogie systems • transmissions and drive trains • suspension systems • electric feeding systems • cooling systems • braking systems
WHS requirements	may include: • protective clothing and equipment • use of tools and equipment • handling of material • use of fire-fighting equipment • first aid equipment • Hazard control, including control of hazardous materials and toxic substances.
Common faults	may include: • failure to achieve ignition and power • failure to achieve fuel flow • excessive exhaust smoke or noise • unusual engine noises or vibrations • excessive play or vibration through steering • Loss of coolant slow response or excessive pedal travel when braking system or component fluid or gas leakage.
Hand tools and equipment	may include: • hammers • screwdrivers • wrenches • sockets and accessories • pliers • Specialist tools for component removal or adjustment.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • identify automotive mechanical systems and components • source relevant technical information • locate mechanical systems and components on modern motor vehicles • Explain the function of at least three major systems of a modern motor vehicle demonstrate basic knowledge of possible causes of faults or problems with vehicle systems.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • WHS regulations, requirements, equipment and material, and personal safety requirements • methods of sourcing information relevant to mechanical systems • types, functions, location and basic operation of major vehicle systems and components, including basic automotive mechanical terminology • common faults of major vehicle systems and components
Underpinning Skills	Demonstrate skills of: • communication skills to: ➢ communicate ideas and information in verbal and written report ➢ use questioning and active listening skills, e.g. when clarifying information • literacy skills to: ➢ understand workplace safety-related procedures ➢ read and follow information in written instructions, specifications and other applicable reference documents • planning and organising skills to: ➢ identify risk factors ➢ plan and organise activities that implement and follow standard procedures • problem-solving skills to: ➢ recognise a workplace problem or a potential problem ➢ refer problems outside area of responsibility to appropriate person • self-management skills to: ➢ recognise limitations and seek timely advice ➢ follow workplace documentation, such as workplace safe operating procedures • technical skills to: ➢ collect, organise and understand technical information relating to: ➢ recognising and reporting unsafe situations ➢ automotive components and systems identification,

	location and function ➢ select tools and equipment appropriate to the task ➢ safely use workplace tools and equipment when applying mechanical fundamentals
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices. • workplace location or simulated workplace • technical reference information • a range of functioning automotive systems and components • vehicles relevant to the qualification being sought • automotive tools and equipment • personal protective equipment and workplace safety equipment
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Apply Train Manufacturing Electrical System Fundamentals**
Unit Code	**IND BBS1 10 0117**
Unit Descriptor	This unit describes the performance outcomes required to apply basic knowledge, skills and understanding of electricity as it relates to the electrical systems, components and technologies found in modern train bogie system. The unit involves the development of skills and knowledge that relate to the fundamental operating principles of electrical systems, including electrical controls; bogie electrical systems, or control systems for traction motor management and mounting and body management, including electrical accessories Work applies to light rail tram and is based on knowledge of elements of electricity and basic circuit theory as well as the function, location and operation of train electrical circuits, systems and components.

Elements	Performance Criteria
1. Identify and apply electrical fundamentals	1.1 Suitable and relevant ***sources of information*** are located to assist with electrical fundamentals research 1.2 ***Elements of electricity*** are identified 1.3 Elements of electricity are applied to common terminology for train electrical circuits, systems and components 1.4 Elements of electricity are applied to common electrical calculations for train electrical circuits, systems and components
2. Research and identify systems and components	2.1 Component or system to be researched is identified 2.2 Suitable and relevant sources of information are located to assist with identification of systems and components 2.3 Reference information is researched to ensure sufficient understanding of component or system to assist with identifying how the circuit functions 2.4 Potential for unsafe conditions or ***safety hazards*** is identified 2.5 ***Workplace Health and Safety (WHS) requirements*** are applied
3. Locate systems and components	3.1 Suitable train ***systems or components*** are sourced to assist with task

	3.2 Location of system or component is confirmed in relation to modern train configuration 3.3 Alternative methods of system or component location are identified in relation to possible light rail configuration (where applicable)
4. Determine method of system or component operation	4.1 Appropriate ***electrical test equipment*** is identified and applied for the purpose of testing circuit, system or component 4.2 System or component is examined and sub-assembly components are identified 4.3 Operational principles of circuit, component and system functions are determined and analysed 4.4 System or component relationship to light vehicle operation is determined 4.5 Potential for unsafe conditions or associated risk factors with system or component operation or testing is identified 4.6 Potential common faults with system or component are identified

Variable	**Range**
Sources of information	may include: • train electrical texts • train workshop manuals • magazine technical articles • written instructions • Documented workplace procedures.
Elements of electricity	may include: • voltage • current • resistance • Ohm's law • Conventional circuit theory or circuit types.
Safety hazards	may include: • electricity and water • electric shock • broken or damaged equipment • flammable materials and fire hazards • Lifting practices.
WHS requirements	may include: • Personal Protective Equipment (PPE) & safe manual handling and lifting • safe use of tools and equipment • industry codes of practice • worksite documentation for WHS.

Systems and components	may include: • bogie electrical systems, including: ➢ electro mechanical braking system ➢ traction motor system ➢ High tension leads. ➢ starting systems: ➢ starter motors ➢ drives ➢ relays ➢ switches
Electrical test equipment	may include: • multimeters • test lamp • AC/DC current clamp • battery diagnostic equipment • digital scanner • computer with vehicle interface software • Insulated hand tools oscilloscope thermal imaging equipment or non-contact thermometer.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • identify and apply basic electrical terminology and circuit theory • identify bogie electrical circuits, systems and components • source relevant technical information • locate electrical systems and components on modern motor vehicles • explain the function of at least three major electrical systems of a modern motor vehicle • communicate effectively using technical information and terms with others involved in or affected by the work
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • basic electrical theory and principles of electricity, including: ➢ voltage ➢ amperage ➢ circuit resistance ➢ Alternating Current (AC) and Direct Current (DC) • range of sources of information available to assist with understanding fundamental elements of electricity as they relate to bogie applications • Identification, location and function of major components of common bogie. • bogie assembly and management systems • wiring harness assembly
Underpinning Skills	Demonstrate skills of: • communication skills to:

	➢ follow written and verbal instructions ➢ communicate ideas and information relating to electrical terminology and procedures verbally and in writing ➢ apply questioning and active listening skills, e.g. when obtaining factual information from sources • learning skills to: ➢ identify sources of information, assistance and expert knowledge to expand skills, knowledge and understanding ➢ participate in self-improvement activities • literacy skills to: ➢ understand workplace safety procedures ➢ read and follow information in written instructions, specifications and other applicable reference documents • planning and organising skills to: ➢ identify risk factors and take action to minimise them ➢ plan and organise activities that implement and follow standard procedures • problem-solving skills to: ➢ refer problems outside area of responsibility to appropriate person ➢ use and communicate basic mathematical ideas and techniques that relate to train electrical systems and components • self-management skills to: ➢ recognise limitations and seek timely advice ➢ follow workplace documentation, such as workplace safe operating procedures • technical skills to: ➢ collect, organise and research technical information relating to: ➢ recognising and reporting unsafe situations ➢ bogie electrical components and systems identification, location and function ➢ collect, organise and apply electrical fundamentals information and concepts • technology skills to use information technology equipment to assist with research
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning.
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Shift Materials Safely Using by Hand Manual Handling Methods**
Unit Code	**IND BBS1 11 0117**
Unit Descriptor	This unit involves the skills and knowledge required to shift loads using manual handling methods, including assessing the risks associated with relocating the load, planning the relocation process and carrying out the relocation in accordance with the plan. Work must be carried out in compliance with the relevant OHS regulations concerning the manual handling and movement of loads. Work is performed under some supervision generally within a team environment. Work involves the application of the basic principles for the safe manual handling techniques and movement of loads when shifting materials using manual handling methods as part of day-to-day work.

Elements	Performance Criteria
1. Assess risks associated with the relocation of the load	1.1 Products, goods or materials to be relocated are identified and assessed for the appropriate method of relocation 1.2 Locations for storage are determined and potential routes to be followed are identified 1.3 Effect of load relocation on original load base is predicted 1.4 Points of balance are estimated 1.5 Required clearances are compared to available space and adjustments are made 1.6 Effects of moving contents which may be loose, liquid, dangerous or hazardous are considered 1.7 Potential risks in route(s) which may be followed are considered 1.8 Risks to self are identified arising from the required lifting, load carrying, set down or movement of the goods 1.9 Manual handling ***procedures*** for lifting, lowering and carrying, pushing and pulling are identified 1.10 Team lifting processes are considered for application 1.11 Appropriate personal protective equipment is worn

	1.12 Size to weight ratio of items to be manually handled are identified
2. Plan load relocation	2.1 Relocation of the load is planned consistent with the code of practice for manual handling 2.2 Process for relocating load is proposed including predicting and planning for potential difficulties 2.3 Proposed process is checked against code of practice and workplace procedures for compliance
3. Relocate load	3.1 Actions for lifting, lowering and carrying, pulling and pushing a load are in accordance with workplace procedures and OHS requirements 3.2 Applications appropriate for team relocation of load are identified 3.3 Team lifting tasks are coordinated 3.4 Planned process and route are followed 3.5 Relocated materials are set down without damage to goods, personnel or equipment and checked for stability 3.6 Relocation is checked to see that it meets work requirements, with any variance(s) reported
4. Plan operations.	4.1 Correctly identify type and quantity of produce or 4.2 Identify the safest and most efficient and appropriate movement route.
5. Manually transfer products or materials.	5.1 Manually shift products or materials to and from production processes according to procedures and OHS State regulations. 5.2 Manually load specified products or materials at specific points during the manufacturing process, according to procedures and OHS State regulations.
6. Store, stack and/or relocate products or materials.	6.1 Manually stack products or materials according to procedures and OHS State regulations. 6.2 Manually store products or materials in correct locations. 6.3 Document and/or report material movements as required.

Variable	**Range**
Procedures	May include: • All operations are performed in accordance with procedures. • Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant

	industry and government codes and standards. • All operations are performed in accordance with standard procedures and work instructions. • company procedures • enterprise procedures • organisational procedures • established procedures
Tools and equipment	May include: • hand carts • self-propelled trolleys • wheelbarrows • block and tackle • relevant personal protective equipment
Hazards	May include: • chemicals • dangerous or hazardous substances • movements of equipment, goods and materials • weight of items being handled • spills • dusts/vapours • hazardous materials • manual handling hazards
Problems	May include: • load too heavy or large for safe, easy moving • load in awkward position for safe, easy moving clash of work priorities correct equipment not available. • Appropriate action for problems outside of area of responsibility may be reporting to an appropriate person. • Appropriate action for solving problems within area of responsibility includes asking questions and seeking assistance from appropriate persons/sources.
The shifting operations	May include: • in a range of work environments • by day or night
Workplaces may comprise	May include: • large, medium or small worksites • restricted spaces • exposed conditions • controlled or open environments
Materials to be shifted & Loads to be shifted	may include • Goods • large luggage items • equipment and tools • Cleaning materials components and parts of vehicles and equipment such as tyres, batteries, lifting gear, etc.

Personnel in the work area	may include: • workplace personnel • site visitors • contractors and official representatives
Communication in the work area	may include • phone • electronic data interchange • fax • email • internet • radio • oral, aural or signed communications
Personal protective equipment	may include: • gloves • safety headwear and footwear • safety glasses • two-way radios and high visibility clothing
Information/documents:	May include: • goods identification numbers and codes • manifests, bar codes, goods and container identification • manufacturers specifications for equipment/tools • workplace procedures and policies • supplier and/or client instructions • material safety data sheets • codes of practice including the National Standards for Manual Handling and the Industry Safety Code • relevant legislation, regulations and related documentation • award, enterprise bargaining agreement, other industrial arrangements • standards and certification requirements • quality assurance procedures • emergency procedures
Applicable regulations and legislation	May include: • relevant state/territory OHS legislation • relevant state/territory environmental protection legislation • workplace relations regulations • workers compensation regulations • licence, patent or copyright arrangements • dangerous goods and air freight regulations

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • correct OHS procedures

	• appropriate manual handling and lifting/moving techniques • Appropriate lifting/moving equipment relevant inventory systems. • Competence includes the ability to be able to distinguish between jobs which: • may be easily and safely done by a single person • will require assistance from other people • Require manual handling equipment need mechanical lifting aids. • Consistent performance should be demonstrated. For example, look to see that standard operating procedures and all safety procedures are adhered to
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Knowledge is required of good manual handling practice including organisation procedures and relevant State OHS regulations for manual handling and lift techniques sufficient to recognise potential problems and to take the appropriate action. • Knowledge is required of organisation procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and work standards.
Underpinning Skills	Demonstrate skills of: • This unit requires the ability to read and interpret typical product specifications, job sheets and material labels as provided to operators. • Writing is required to the level of completing workplace forms. • Basic numeracy is required.
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with oral questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Clean Workplace or Equipment**
Unit Code	**IND BBS1 12 0117**
Unit Descriptor	This competency covers general housekeeping duties, as well as the cleaning of plant and equipment. This competency is typically demonstrated by all operators working either independently or as part of a work team. This competency applies to personnel who are required to keep the work area, plant and equipment clean and tidy. The key factors are the identification, scheduling and performance of housekeeping requirements. This may include: • identifying the range and scope of work required • checking if any type of permit has been issued for the work • knowing site safety and housekeeping standards • adequately preparing to undertake the work, including obtaining all necessary safety equipment and PPE • scheduling housekeeping duties • handling chemicals and solvents safely • Keeping assigned plant and equipment clean. • undertaking the work strictly in accordance with the provisions of any permit • completing work in accordance with requirements • moving work and waste materials to designated locations • querying or raising matters about the scope of work if it varies from that normally undertaken • Completing the work in accordance with procedures and obtaining appropriate sign off as required.

Elements	Performance Criteria
1. Identify housekeeping requirements.	1.1 Site safety and housekeeping standards are explained. 1.2 Housekeeping inspection is undertaken in accordance with ***procedures***/work instructions. 1.3 Housekeeping requirements are identified and scheduled as appropriate.
2. Perform general housekeeping duties.	2.1 Designated work areas are kept clean to organisation specific standards. 2.2 Designated work areas are kept clear of obstructions.

	2.3 Chemicals and solvents are handled and used as per the manufacturer guidelines and company specifications. 2.4 Ensure work area is made ready for next user. 2.5 Work materials are removed to designated locations. 2.6 Potential for unsafe conditions or ***safety hazards*** is identified
3. Clean plant and equipment.	3.1 Assigned ***plant and equipment*** are kept clean following established organisation procedures? 3.2 Specialised cleaning procedures are performed as required. 3.3 Ensure that appropriate personal protective equipment are used as required.
4. Dispose of waste materials.	4.1 Waste materials are correctly identified. 4.2 Waste materials are removed to a designated location.

Variable	**Range**
Procedures	May include: • All operations are performed in accordance with procedures. • Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards
Safety hazards	May include: • materials or equipment obstructing work areas • heat, smoke, dust or other atmospheric hazards • sharp edges, protrusions or obstructions • limited head spaces or overhangs • equipment or product mass • slippery surfaces, spills or leaks • noise, rotational equipment or vibration
Plant and equipment	May include: • cleaning equipment and materials • brooms • shovels • solvents • waste containers • safety equipment.
Problems	May include: • correct equipment not immediately available • safety issues associated with housekeeping and/or cleaning • Ensuring that process aids rather than interferes with production.

Variables	May include: • housekeeping and/or cleaning methods and procedures • the type of tools and equipment used in special situations • The use of personal protective equipment. • correct use of tools • waste collection and disposal • conformance with frequency and quality of organisational reporting requirements

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • Ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. • early warning signs for work areas in need of cleaning are recognised • work areas are kept tidy and clean • equipment and/or materials is/are neatly stored, in a safe manner, in the correct location at all times when not in use • equipment is always tidy and safe when in use.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • re-usable materials and waste • duty of care • requirements for housekeeping process • procedures for plant maintenance • safe handling procedures • The standard of cleanliness required. • Routine and special cleaning needs. • safely handle products and materials
Underpinning Skills	Demonstrate skills to: • plan own work, including predicting consequences and identifying improvements • use PPE • Read relevant safety information and apply safety precautions appropriate to the task/ relevant to the practical operation of the process.
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Produce Drawings Manually**
Unit Code	**IND BBS1 13 0117**
Unit Descriptor	This unit describes the skills and knowledge required to produce drawings using manual drafting techniques. It applies to those in an automotive and related component manufacturing environment.

Elements	Performance Criteria
1. Plan drawings	1.1 Project objectives and design brief are defined and clarified according to workplace procedures 1.2 Drafting requirements and processes are clarified based on project objectives and specifications 1.3 ***Drawing specifications*** are identified and confirmed with appropriate personnel 1.4 Required drawing ***resources*** are selected
2. Prepare and check drawings	2.1 Critical dimensions and data for the required drawing are established 2.2 Preliminary sketches are prepared and reviewed with appropriate personnel 2.3 Drawings are prepared according to project objectives, specifications and workplace procedures 2.4 Drawings are checked against project objectives, specifications and workplace quality standards, and necessary changes are made
3. Document drawings	3.1 Drawings and technical information are documented according to project requirements and workplace procedures 3.2 Drawings are processed for approval by appropriate personnel 3.3 Drawings and associated documentation are stored according to workplace procedures

Variable	Range
Drawing specifications	May include: • manufacturing processes • Measurements and specifications quality and technical information.
Resources	May include: • design brief and associated design specifications • drawing equipment • Product and sub-assembly to be designed.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • interpret drawing objectives and specifications • Schedules and work plans processes to clarify manual drafting requirements procedures for making and listing drawing measurements procedures for checking, documenting and storing drawings.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • drawing standards • drawing procedures, • specifications,
Underpinning Skills	Demonstrate skills of: • Reading skills to: ➢ interpret drawing objectives and specifications ➢ interpret technical information • Writing skills to: ➢ produce drawing requirements and material lists ➢ List dimensions and specifications in drawings. • Oral communication skills to: ➢ communicate with customers and others in the workplace • Planning and organising skills to: ➢ manage given timelines ➢ prepare drawing materials and equipment • Digital literacy skills to: ➢ use drawing equipment
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Perform General Machining**
Unit Code	**IND BBS1 14 0117**
Unit Descriptor	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements	Performance Criteria
1. Determine job requirements	1.1. Drawings, instructions and specifications are interpreted and understood
2. Determine sequence of operations	2.1. Sequence of ***operations*** including job set-up is determined for maximum efficiency and to meet job specifications 2.2. Appropriate ***materials*** are selected and datum established as required
3. Select and mount tools	3.1. Appropriate ***tools*** for job are selected, sharpened and shaped as required 3.2. Tools are mounted and positioned correctly
4. Perform machining operations	4.1. Basic ***marking out techniques*** are used where required 4.2. ***Machining parameters*** are set for job requirements and maximum tool life 4.3. Work is held or correctly clamped without damage to product, and all safety requirements are met 4.4. ***Machining*** is performed in a safe manner utilising all guards, safety procedures and personal protective clothing and equipment
5. Measure components	5.1. Components are checked with instruments or gauges appropriate to the measurement requirements to ensure compliance with specifications
6. Adjust and maintain machine	6.1. Repetitive ***maintenance and adjustments*** are carried out as required which may include slide and neck adjustment, cleaning and lubrication

Variable	Range
Operations	May include: • parallel cutting • slotting • planning

	• drilling • knurling • cutting flats • non-precision surface grinding operations
Materials	May include: • ferrous and non-ferrous
Tools	May include: • cutting tools and accessories • measuring devices
Marking out techniques	May include: • basic marking out techniques using callipers, steel rules, dividers and scribers
Machining parameters	May include: • speeds • feeds • stops • coolant and cutting lubricants
Machining	May include: • lathes • mills • planers • shapers • radial arm drills • slotters • surface grinder
Maintenance and adjustments	May include: • slide and collar adjustment • cleaning and lubrication

Evidence Guide	
Critical Aspects of Competence	Demonstrate knowledge and skills to: • Assessors must be satisfied that the candidate can competently and consistently apply the skills covered in this unit of competency in new and different situations and contexts. Critical aspects of assessment and evidence include: • correct job planning including identifying job requirements from drawings, instructions or specifications and sequence of operations • identifying any required tooling, measuring equipment and accessories • selecting and mounting required tooling • selecting material and marking out if required • setting machining parameters • checking machined components for conformance to specifications.

Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • reasons for selecting the chosen sequence of operations • methods of work holding • basic marking out techniques including datum points/lines • geometry of cutting tools for a range of materials and applications • benefits of using correctly sharpened cutting tools • machine operation • selection of feeds and speeds to suit a range of materials and operations within the scope of this unit • correct methods of mounting a variety of cutting tools • safety issues with regard to correct clamping, guards and shields • tolerances and limits of size • situations indicating the need for machine adjustment, lubrication and cleaning • techniques, tools and equipment to measure materials and machined components • use and application of personal protective equipment • safe work practices and procedures • hazards and control measures associated with general machining
Underpinning Skills	Demonstrate skills of: • reading and interpreting routine information on written job instructions, specifications and standard operating procedures which may include drawings
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Perform Basic Welding, Thermal Cutting, Heating and Gouging**
Unit Code	**IND BBS1 15 0117**
Unit Descriptor	This unit describes the performance outcomes required to perform basic welding, thermal cutting, heating and gouging operations. It applies to those in the train industry and involves the application of skills and knowledge at a production worker level.

Elements	Performance Criteria
1. Prepare for work	1.1 Job requirements and welding information are identified from work instructions 1.2 ***Welding equipment*** and resources are identified, selected and inspected 1.3 Size, type and quantity of materials and components are obtained and inspected for compliance 1.4 Work areas and welding are planned according to ***workplace procedures***
2. Perform basic welding	2.1 Work Health and Safety (WHS) requirements are identified according to workplace procedures 2.2 Weld equipment is set up to suit job requirements and workplace procedures 2.3 Welding methods are selected to suit job requirements 2.4 Welding is carried out according to workplace standards and without causing damage to property, locomotive or components
3. Perform basic thermal cutting, heating and gouging work	3.1 Basic thermal cutting, heating and gouging equipment is set up to suit job requirements and workplace procedures 3.2 Basic thermal cutting, heating and gouging equipment is selected to suit job requirements 3.3 Basic thermal cutting, heating and gouging are carried out according to workplace standards and without causing damage to property, locomotive components
4. Complete work processes	4.1 Work is completed and checked against job specifications 4.2 Materials that can be reused are collected and stored 4.3 Waste and scrap materials are removed according to workplace procedures

	4.4 Work area is cleaned and equipment is maintained 4.5 Faulty equipment is identified, tagged and reported

Variable	Range
Welding equipment	May include: • Gas Metal Arc Welding (GMAW) • Manual Metal Arc Welding (MMAW) • oxy-acetylene plant and equipment • Thermal cutting, heating and gouging equipment.
Workplace procedures	May include: • procedures for recording and reporting welding, thermal cutting, heating and gouging processes • WHS and environmental requirements relating to welding, thermal cutting, heating and gouging equipment operating procedures.

Evidence Guide	
Critical Aspects of Competence	Demonstrate knowledge and skills to: • manufacturing workplace or simulated workplace • locomotives components that require basic welding, thermal cutting, heating and gouging operations • WHS equipment, including PPE relating to basic welding, thermal cutting, heating and gouging • workplace procedures, equipment and operating instructions relating to basic welding, thermal cutting, heating and gouging • welding consumables and materials • welding equipment and operating instructions • Work sheets relating to basic welding, thermal cutting, heating and gouging operations.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Work Health and Safety (WHS) requirements in relation to basic welding, thermal cutting, heating and gouging work tasks, including Personal Protective Equipment (PPE) • types of welding rods and their application • MMAW techniques • GMAW techniques • thermal cutting, heating and gouging techniques • welding quality standards • Oxy-acetylene welding techniques.
Underpinning Skills	Demonstrate skills of: • Reading skills to: ➢ interpret sketches and drawings ➢ interpret Safety Data Sheets (SDS) ➢ identify WHS signs and symbols in the workplace ➢ Interpret workplace procedures; job instructions; and

	welding, cutting and heating plan. • Writing skills to: ➢ complete basic welding, heating and cutting job cards ➢ Complete faulty equipment tags. • Numeracy skills to: ➢ identify and set gas working pressures ➢ set machine settings ➢ Measure materials to specifications. • Digital literacy skills to: ➢ Use basic electronic welding and thermal cutting equipment. • Planning and organising skills to: ➢ Plan and prepare equipment, work area and materials to job specifications. • Problem-solving skills to: ➢ Identify workplace hazards.
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Perform Mechanical Cutting**
Unit Code	**IND BBS1 16 0117**
Unit Descriptor	This unit describes the performance outcomes required to prepare and operate mechanical cutting equipment. It applies to those in train environment and involves the application of skills and knowledge at a production worker level.

Elements	Performance Criteria
1. Plan for work	1.1 Job requirements and specifications are identified from work order and drawings 1.2 Cutting equipment is selected and inspected for safe operation, and faults are identified 1.3 Cutting equipment is set and adjusted for use, according to material type and job specifications 1.4 Cutting list is identified from work plan, and cutting processes are planned to ensure minimal waste
2. Operate cutting equipment	2.1 Personal protective equipment is identified and used according to ***workplace procedures*** 2.2 Equipment safety stops and guards are checked and adjusted if necessary 2.3 Equipment is operated according to manufacturer instructions and workplace procedures 2.4 Material is cut and inspected according to job specifications 2.5 Cutting defects are identified and corrective actions taken
3. Complete job	3.1 Work area and equipment are cleaned and maintained according to workplace procedures 3.2 Identified faulty cutting equipment is tagged and reported 3.3 Cutting list is completed and given to appropriate personnel

Variable	Range
Workplace procedures	May include: • use of tools and equipment for mechanical cutting • WHS requirements for mechanical cutting.

Evidence Guide

Critical Aspects of Competence	Demonstrate knowledge and skills to: • automotive workplace or simulated workplace • WHS equipment and Personal Protective Equipment (PPE) required for mechanical cutting operations • mechanical cutting equipment • material for cutting • marking and measuring equipment relevant to performing mechanical cutting • working drawings and cutting specifications • Work sheets relating to performing mechanical cutting operations.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • WHS requirements and workplace procedures relating to operating mechanical cutting equipment • types, applications and operation of mechanical cutting equipment • procedures for setting up and operating mechanical cutting equipment • material-handling techniques relating to performing mechanical cutting • Methods for preparing cutting lists.
Underpinning Skills	Demonstrate skills of: • Learning skills to: ➢ draw on prior knowledge to identify job needs ➢ Locate, evaluate and organise job information. • Reading skills to: ➢ interpret workplace procedures and Work Health and Safety (WHS) requirements ➢ identify work orders and cutting list ➢ Interpret working drawings, job specifications and manufacturer instructions. • Writing skills to: ➢ prepare cutting list ➢ Complete faulty equipment tags. • Oral communication skills to: ➢ Report machine faults. • Numeracy skills to: ➢ mark materials to specifications ➢ calculate measurements from working drawings ➢ identify quantities ➢ Follow cutting list. • Planning and organising skills to: ➢ select and use cutting equipment ➢ plan cutting operation ➢ Prepare cutting equipment, materials and work area. • Self-management skills to: ➢ perform cutting activities within required workplace

	timelines ➢ Maintain equipment according to workplace procedures. • Problem-solving skills to: ➢ Identify machine faults.
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Work Effectively in Teams**
Unit Code	**IND BBS1 17 0117**
Unit Descriptor	This unit describes the performance outcomes required to work effectively as part of a workplace team. It applies to those in train manufacturing environment and involves the application of skills and knowledge at a production worker level.

Elements	Performance Criteria
1. Contribute to teams	1.1 Workplace procedures and job role requirements are identified 1.2 Team decision-making processes are identified and aligned with workplace requirements and procedures 1.3 Participation in team decision making is demonstrated
2. Contribute to work tasks	2.1 Roles and responsibilities of self and other team members for production targets are identified 2.2 Verbal and written work instructions are followed 2.3 Work effectiveness is maintained when changes to teams occur
3. Contribute to team review of work tasks	3.1 Potential work tasks improvements are identified and communicated to the team 3.2 Improvements to work task processes are documented as required and forwarded to appropriate personnel for consideration

Variable	Range
Personal quality	May include but not limited to: • Generating idea • Communicating effectively • Participate with the team

Evidence Guide	
Critical Aspects of Competence	Demonstrate knowledge and skills to: • participate in team meetings • comply with workplace procedures when working with others in teams • complete tasks in line with Job Safety Analysis (JSA) and Safe Work Method Statements (SWMS) • undertake tasks as a member of the team according to work instructions • participate in team discussions of work tasks • participate in team decision making

	• Participate in achieving team production targets and key production indicators.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • fundamentals of team structures • team reporting procedures • basic conflict-resolution strategies • decision-making processes • causes of conflict in a team • workplace meeting procedures • Workplace procedures.
Underpinning Skills	Demonstrate skills of: • Reading skills to: ➢ interpret safety information, including Job Safety Analysis (JSA) sheets and Safe Work Method Statements (SWMS) ➢ identify basic job instructions and production targets ➢ Interpret workplace meeting procedures, agendas, notices and schedules. • Oral communication skills to: ➢ actively participate in team decision making and team meetings ➢ Follow verbal instructions. • Numeracy skills to: ➢ Interpret team key production indicators and production targets. • Teamwork skills to: ➢ understand team member production roles and responsibilities
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Operate a Personal Computer**
Unit Code	**IND BBS1 18 0117**
Unit Descriptor	This unit describes the performance outcomes, skills and knowledge required to start up a personal computer or business computer terminal; to correctly navigate the desktop environment; and to use a range of basic functions.

Element	Performance Criteria
1. Start computer, system information and features	1.1Workspace, furniture and equipment are adjusted to suit user ***ergonomic requirements.***
	1.2***Work organizations*** that meet organizational and ***Occupational Health and Safety (OHS) requirements*** for computer operation are ensured.
	1.3Computer is started or logged on according to user procedures.
	1.4Basic functions and features are identified using system information.
	1.5Desktop configurations are customized, if necessary, with assistance from appropriate persons.
	1.6Help functions are used as required.
2. Navigate and manipulate desktop environment	2.1Features are opened, closed and accessed by selecting correct ***desktop icons***.
	2.2Desktop windows are opened, resized and closed by using correct window functions and roles.
	2.3Shortcuts are created from the desktop, if necessary, with assistance from appropriate persons.
3. Organize files using basic directory and folder structures	3.1Folders/subfolders are created with suitable names.
	3.2Files are saved with suitable names in appropriate folders.
	3.3Folders/subfolders and files are renamed and moved as required.
	3.4Folder/subfolder and ***file attributes*** are identified.
	3.5Folders/subfolders and files are moved using cut and paste, and drag and drop techniques.
	3.6Folders/subfolders and files are saved to ***appropriate media*** where necessary.
	3.7Folders/subfolders and files are searched using appropriate software tools.

	3.8Deleted folder/subfolders and files are restored as necessary
4. Print information	4.1 Information is printed from installed printer. 4.2Progress of print jobs are viewed and deleted as required. 4.3Default printer if installed and required is changed.
5. Shut down computer	5.1All open applications are closed. 5.2Computer is shut-down according to user procedures.

Variable	Range
Ergonomic requirements	May include: • avoiding radiation from computer screens • chair height, seat and back adjustment • document holder • footrest • keyboard and mouse position • lighting • noise minimization • posture • screen position • workstation height and layout
Work organization	May include: • exercise breaks • mix of repetitive and other activities • rest periods • Visual Display Unit (VDU) eye testing
OHS requirements	May include: • OHS guidelines related to the use of the screen equipment, computing equipment and peripherals, ergonomic work stations, security procedures, customization requirements • statutory requirements
Desktop icons	May include: • directories/folders • files • network devices • recycle bin and waste basket
File attributes	May include: • dates • size
Appropriate media	May include: • CDs • diskettes • local hard drive

	• other locations on a network • USB/ Flash/Thumb drives • zip disks

Evidence Guide	
Critical Aspects of Competence	Demonstrate skills and knowledge in: • navigation and manipulation of the desktop environment within the range of assigned workplace tasks • knowledge of organizational requirements for simple documents and filing conventions • application of simple keyboard functions to produce documents with a degree of speed and accuracy relevant to the level of responsibility required
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • key provisions of relevant legislation from all levels of government that may affect aspects of business operations, such as: OHS • basic ergonomics of computer use • main types and parts of computers, and basic features of different operating systems • suitable file naming conventions
Underpinning Skills	Demonstrate skills in: • literacy skills to identify work requirements, to comprehend basic workplace documents, to interpret basic user manuals and to proofread simple documents • communication skills to identify lines of communication, to request advice, to effectively question, to follow instructions and to receive feedback • problem-solving skills to solve routine problems in the workplace, while under direct supervision • technology skills to use equipment safely while under direction, basic keyboard and mouse skills and procedures relating to logging on and accessing a computer • basic typing techniques and strategies
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Apply Quality Standards**
Unit Code	**IND BBS1 19 0117**
Unit Descriptor	This unit covers the knowledge, attitudes and skills required in applying quality standards in the operational activities.

Elements	Performance Criteria
1. Assess own work	1.1 Completed work is checked against organization standards relevant to the activity being undertaken. 1.2 An understanding is demonstrated on how the work activities and completed work relate to the next process and to the final appearance of the service / product. 1.3 Faulty service is identified and isolated in accordance with policies and procedures. 1.4 Faults and any identified causes are recorded and reported in accordance with standard procedures.
2. Assess quality of service rendered	2.1 Services rendered are ***quality checked*** against standards and specifications. 2.2 Service rendered are evaluated using the appropriate evaluation parameters and in accordance with standards. 2.3 Causes of any identified faults are identified and corrective actions are taken in accordance with policies and procedures.
3. Record information	3.1 Basic information on the quality performance is recorded in accordance with organization procedures. 3.2 Records of work quality are maintained according to the requirements of the organization / enterprise.
4. Study causes of quality deviations	4.1 Causes of deviations from final outputs or services are investigated and reported in accordance with standard procedures. 4.2 Suitable preventive action is recommended based on organization ***quality standards*** and identified causes of deviation from specified quality standards of final service or output.
5. Complete documentation	5.1 Information on ***quality parameters*** and other indicators of service performance is recorded. 5.2 All service processes and outcomes are recorded.

Variable	Range
Quality check	May include but not limited to: • Visual inspection • Physical measurements

	• Check against specifications/preferences
Quality standards	May include but not limited to: • materials • service • output and processes/procedures
Quality parameters	May include but not limited to: • style/design/specifications • durability • service variations • materials • damage and imperfections

Evidence Guide	
Critical Aspects of Competency	Demonstrates skills and knowledge to: • Check completed work continuously against standard • Identify and isolate faulty service / workmanship • Check service rendered against organization standards • Identify and apply corrective actions on the causes of identified faults • Record basic information regarding quality performance • Investigate causes of deviations of services against standard • Recommend suitable preventive actions
Underpinning Knowledge	Demonstrates knowledge of: • Relevant quality standards, policies and procedures • Characteristics of services • Safety environment aspects of service processes • Relevant evaluation techniques and quality checking procedures • Workplace procedures • Reporting procedures
Underpinning Skills	Demonstrates skills to: • Interpret work instructions, specifications and standards appropriate to the required work or service • Carry out relevant performance evaluation • Maintain accurate work records in accordance with procedures • Meet work specifications • Communicate effectively within defined workplace procedures
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning

Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Work with Others**
Unit Code	**IND BBS1 20 0117**
Unit Descriptor	This unit covers the knowledge, skills, and attitudes required to develop workplace relationship and contribute in workplace activities.

Element	Performance Criteria
1. Develop effective workplace relationship	1.1. ***Duties and responsibilities*** are done in a positive manner to promote cooperation and good relationship 1.2. Assistance is sought from ***workgroup*** when difficulties arise and addressed through discussions 1.3. ***Feedback on performance*** provided by others in the team is encouraged, acknowledged and acted upon 1.4. Differences in personal values and beliefs are respected and acknowledged in the development
2. Contribute to work group activities	1.1 ***Support is provided to team members*** to ensure workgroup goals are met 1.2 Constructive contributions to workgroup goals and tasks are made according to ***organizational requirements*** 1.3 Information relevant to work are shared with team members to ensure designated goals are met

Variable	Range
Duties and responsibilities may include but not limited to:	• Job description and employment arrangements • Organization's policy relevant to work role • Organizational structures • Supervision and accountability requirements including OHS • Code of conduct
Work group may include but not limited to:	• Supervisor or manager • Peers/work colleagues • Other members of the organization
Feedback on performance may include but not limited to:	• Formal/Informal performance appraisal • Obtaining feedback from supervisors and colleagues and clients • Personal, reflective behavior strategies • Routine organizational methods for monitoring service delivery
Providing support to team members may include but not limited to:	• Explaining/clarifying • Helping colleagues • Providing encouragement • Providing feedback to another team member

	• Undertaking extra tasks if necessary
Organizational requirements	May include but not limited to: • Goals, objectives, plans, system and processes • Legal and organization policy/guidelines • OHS policies, procedures and programs • Ethical standards • Defined resources parameters • Quality and continuous improvement processes and standards

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Provide support to team members to ensure goals are met • Acton feedback from clients and colleagues • Access learning opportunities to extend own personal work competencies to enhance team goals and outcomes
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • relevant legislation that affects operations, especially with regards to safety • reasons why cooperation and good relationships are important • the organization's policies, plans and procedures • how to elicit and interpret feedback • workgroup member's responsibilities and duties • importance of demonstrating respect and empathy in dealings with colleagues • how to identify and prioritize personal development opportunities and options
Underpinning Skills	Demonstrates skills to: • understand the organization's policies and work procedures • write simple instructions for particular routine tasks • interpret information gained from correspondence • request advice, receive feedback and work with a team • organize work priorities and arrangement • select and use technology appropriate to a task • relate to people from a range of social, cultural and ethnic backgrounds
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Receive and Respond to Workplace Communication**
Unit Code	**IND BBS1 21 0117**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to receive, respond and act on verbal and written communication.

Element	Performance Criteria
1. Follow routine spoken messages	1.1 Required information is gathered by listening attentively and correctly interpreting or understanding information/instructions. 1.2 Instructions/information is properly recorded. 1.3 Instructions are acted upon immediately in accordance with information received. 1.4 Clarification is sought from workplace supervisor on all occasions when any instruction/information is not clear.
2. Perform workplace duties following written notices	*2.1* ***Written notices and instructions*** are read and interpreted correctly in accordance with ***organizational guidelines***. 2.2 Routine written instruction is followed in sequence. 2.3 Feedback is given to workplace supervisor based on the instructions/information received.

Variable	Range
Written notices and instructions	May include but not limited to: • Handwritten material • printed material • Internal memos • External communications • Electronic mail • Briefing notes • General correspondence • Marketing materials • Journal articles
Organizational guidelines	May include but not limited to: • Information documentation procedures • Company policies and procedures • Organization and service manuals

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Demonstrate knowledge of organizational procedures for handling verbal and written communications

	• Receive and act on verbal messages and instructions • Record instructions/information
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • organizational policies/guidelines in regard to processing internal/external information • ethical work practices in handling communications • communication process
Underpinning Skills	Demonstrates skills to: • receive and clarify conciseness messages/information/communication • record messages/information accurately
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Demonstrate Work Values**
Unit Code	**IND BBS1 22 0117**
Unit Descriptor	This unit covers the knowledge, skills and attitude required in demonstrating proper work values.

Elements	Performance Criteria
1. Define the purpose of work	1.1 One's unique sense of purpose for working and the 'whys' of work are identified, reflected on and clearly defined for one's development as a person and as a member of society. 1.2 Personal mission is achieved in harmony with company's values.
2. Apply work values/ethics	2.1 ***Work values/ethics/concepts*** are classified and reaffirmed in accordance with the transparent company ethical standards, policies and guidelines. 2.2 ***Work practices*** are undertaken in compliance with industry work ethical standards, organizational policy and guidelines 2.3 Personal behavior and relationships with co-workers and/or clients are conducted in accordance with ethical standards, policy and guidelines. 2.4 ***Company resources*** are used in accordance with transparent company ethical standard, policies and guidelines.
3. Deal with ethical problems	3.1 Company ethical standards, organizational policy and guidelines on the prevention and reporting of unethical conduct are accessed and applied in accordance with transparent company ethical standard, policies and guidelines. 3.2 ***Work incidents/situations*** are reported and/or resolved in accordance with company protocol/guidelines. 3.3 Resolution and/or referral of ethical problems identified are used as learning opportunities.
4. Maintain integrity of conduct in the workplace	4.1 Personal work practices and values are demonstrated consistently with acceptable ethical conduct and company's core values. 4.2 Instructions to co-workers are provided based on ethical, lawful and reasonable directives. 4.3 Company values/practices are shared with co-workers using appropriate behavior and language.

Variable	Range
Work values/ethics/ concepts	May include but are not limited to: • Commitment/ Dedication • Sense of urgency • Sense of purpose • Love for work • High motivation • Orderliness • Reliability and Dependability • Competence • Goal-oriented • Sense of responsibility • Being knowledgeable • Loyalty to work/company • Sensitivity to others • Compassion/Caring attitude • Balancing between family and work • Sense of nationalism
Work practices	May include but are not limited to: • Quality of work • Punctuality • Efficiency • Effectiveness • Productivity • Resourcefulness • Innovativeness/Creativity • Cost consciousness • 5S • Attention to details
Company resources	May include but are not limited to: • Consumable materials • Equipment/Machineries • Human • Time and Financial resources
Work incidents/ Situations	May include but are not limited to: • Violent/intense dispute or argument • Gambling • Use of prohibited substances • Pilferages • Damage to person or property • Vandalism • Falsification • Bribery • Sexual Harassment and Blackmail

Evidence Guide

Critical Aspects of Competence	Demonstrates skills and knowledge to: • Define one's unique sense of purpose for working • Clarify and affirm work values/ethics/concepts consistently in the workplace • Demonstrate work practices satisfactorily and consistently in compliance with industry work ethical standards, organizational policy and guidelines • Demonstrate personal behavior and relationships with co-workers and/or clients consistent with ethical standards, policy and guidelines • Use company resources in accordance with company ethical standard, policies and guidelines. • Follow company ethical standards, organizational policy and guidelines on the prevention and reporting of unethical conduct/behavior
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Occupational health and safety • Work values and ethics • Company performance and ethical standards • Company policies and guidelines • Fundamental rights at work including gender sensitivity • Work responsibilities/job functions • Corporate social responsibilities • Company code of conduct/values • Balancing work and family responsibilities
Underpinning Skills	Demonstrates skills in: • Interpersonal skills • Communication skills • Self awareness, understanding and acceptance • Application of good manners and right conduct
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Develop Understanding of Entrepreneurship**
Unit Code	**IND BBS1 23 0117**
Unit Descriptor	This unit covers knowledge, skills and attitude required to understand the concepts, principles, functions, strategies and methods of entrepreneurship. It also covers identifying and developing the entrepreneurial competencies.

Elements	Performance Criteria
1. Describe and explain the concept, principles, and scope of entrepreneurship	1.1 The concept and principles of entrepreneurship are analyzed and discussed. 1.2 Entrepreneurial traits and distinguishing features, entrepreneurial motivations and types of entrepreneurs are identified and discussed. 1.3 The role of entrepreneurship development for the Ethiopian economy is explained and discussed. 1.4 Entrepreneurship for women and disables is discussed and analyzed.
2. Discuss how to become an entrepreneur	2.1 The positive mind set, attitude towards poverty and "can do mentality" is developed. 2.2 Self-employment as an individual economic independence and personal growth is discussed and analyzed. 2.3 Advantages and disadvantages of self-employment and being an employee are explained and discussed. 2.4 Major competencies of successful entrepreneurs are identified and explained. 2.5 Self-potential is assessed to determine if qualified to become an entrepreneur. 2.6 The behaviors of successful entrepreneurs are identified and discussed. 2.7 Business ideas are generated using appropriate tools, techniques and steps. 2.8 Business opportunities are identified and assessed.
3. Discuss how to start and organize an enterprise	3.1 The concepts and ***legal forms*** of ***business enterprises*** in Ethiopia are identified and discussed 3.2 Business Ethics is understood and developed. 3.3 Facts about micro, small and medium enterprises are discussed, clarified and understood. 3.4 Key success factors in setting up micro, small and medium businesses are identified and explained.

	3.5 Procedures for identifying suitable market for business are discussed and understood. 3.6 ***Major factors*** to consider in selecting a location for a business are identified and discussed. 3.7 Amount of money needed to start an enterprise is estimated and various sources of finance identified and discussed.
4. Discuss how to operate an enterprise	4.1 Processes of hiring and managing people are explained and discussed. 4.2 The importance, techniques and application of self-management skills, negotiation skills and time management skills, decision skills are discussed and understood. 4.3 The techniques and procedures of managing sales are explained and discussed. 4.4 Factors to be considered in selecting suppliers and the steps to follow when doing business with them are identified and discussed. 4.5 Awareness of how new technologies can affect micro, small and medium business is developed, and Characteristics of appropriate technology for use are explained and discussed. 4.6 Risk assessment and management of business enterprise are performed regularly. 4.7 Qualities are properly inspected and inventories properly managed. 4.8 Basic concepts of Monitoring and Evaluation are explained and understood.
5. Discus how to prepare and use financial records	5.1 Importance of ***financial source documents*** and record keeping is discussed. 5.2 ***Financial recording documents*** are identified and prepared. 5.3 Different types of cost and expense that occur in a business and how to manage them are discussed and understood. 5.4 Factors and procedures in knowing the cost and expense of the enterprise are discussed and understood. 5.5 Simple financial statements are prepared and understood
6. Develop one's own business plan	6.1 The concept, importance and process of preparing/ writing a business plan are discussed and understood 6.2 ***Feasibility of the business*** idea is made clear and

	understood. 6.3 Findings of the feasibility study are interpreted, assessed and analyzed. 6.4 Standard structure and format are applied in preparing business plan. 6.5 Problems that may arise or encounter when starting a business are identified and understand.

Variables	**Range**
Legal forms	May include but not limited to: • Sole proprietorship • Partnership • Cooperatives • Private Limited Company
Business Enterprises	May include but not limited to: • Micro • Small • Medium
Major factors	May include but not limited to: • Economics (local economy) • Population • Competition
Financial source documents	May include but not limited to: • Cash book • Vouchers • Invoices • Receipts • Check
Financial recording documents	May include but not limited to: • Journal • Ledger • Fixed asset records • Inventory record • Payroll sheet • Account receivable • Account payable • Daily sales record
Feasibility of the business	May include but not limited to: • opportunities available • market competition • timing/ cyclical considerations • skills available • resources available • location and/ or premises available • risk related to a particular business opportunity, especially • in regard to Occupational Health and Safety and

	• environmental considerations

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Explain principles and concept of entrepreneurship • Discuss how to become entrepreneur • Discuss how to organize an enterprise • Discuss how to operate an enterprise • Discus how to prepare and use financial records • Develop business plan
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Entrepreneurship concepts, principles, roles and types • Entrepreneurial traits, motivation and distinguishing features • Types of entrepreneurs • Entrepreneurial competencies • Entrepreneurial behaviors • Business ideas and business opportunities • Self potential assessment • Types of enterprises • Legal forms of business ownership • Risk assessment and evaluation • Self-employment and employment • Managing sales, people and time • Facts about micro, small and medium enterprises • Micro, Small and Medium Enterprises • Key success factors for setting up micro, small and medium enterprises • Procedures for identifying suitable markets • Business location • Major factors for selecting business location • Quality control • Inventory management • Monitoring and evaluation • New technologies • Startup capital • Investment capital • Working capital • Financing options • Financial records • Costs and expenses • Business plan and Feasibility study
Underpinning Skills	Demonstrate skills to: • Planning, organizing, hiring and leading skills • Self-management skills • Negotiation skills • Time management skills

	• Problem solving skills • Decision making skills • Selling skills • Risk assessment skills • Presentation skills • Inventory controlling skills • Using technology • Financial record keeping skills • Preparing simple financial statement • Financial reporting skills • Managing money • Suppliers selection skills • Monitoring and evaluation skills
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level I	
Unit Title	**Apply 3S**
Unit Code	**IND BBS1 24 0117**
Unit Descriptor	This Unit Title covers the knowledge, skills and attitudes required by a worker to apply 3S techniques to his/her workplace. The unit assumes the worker has a particular job in the allocated workplace known by the individual.

Elements	Performance Criteria
1. Organize junior Kaizen Promotion Team (KPT).	1.1. Basics, principles and stages of KPT are identified using appropriate procedures. 1.2. Structure of ***Junior KPT*** is established in accordance with the organizational procedures. 1.3. Effective and appropriate contributions are made to complement team activities and objectives using individual skills and competencies. 1.4. Effective and appropriate forms of communications are used and undertaken with KPT members who contribute to know KPT activities and objectives. 1.5. Kaizen Board (Visual Management Board) is prepared and used in harmony with different workplace contexts.
2. Prepare for work.	2.1. Work instructions are used to determine job requirements, including method, material and equipment. 2.2. Job specifications are read and interpreted following working manual. 2.3. ***OHS requirements***, including dust and fume collection, breathing apparatus and eye and ear personal protection needs are observed throughout the work. 2.4. Appropriate materials are selected. 2.5. ***Safety equipment and tools*** are identified and checked for safe and effective operation.
3. Sort items.	3.1. Plan is prepared to implement sorting activities. 3.2. Cleaning activities are performed. 3.3. All ***items*** in the workplace are identified following ***the appropriate procedures***. 3.4. Necessary and ***unnecessary items*** are listed using the ***appropriate format***. 3.5. ***Red tag*** strategy is used for unnecessary items. 3.6. Unnecessary items are evaluated and placed in an

	appropriate place other than the workplace. 3.7. ***Necessary items*** are recorded and quantified using appropriate format. 3.8. Performance results are reported using appropriate formats. 3.9. Necessary items are regularly checked in the workplace.
4. Set all items in order.	4.1. Plan is prepared to implement set in order activities. 4.2. General cleaning activities are performed. 4.3. Location/layout, storage and indication methods for items are decided. 4.4. Necessary ***tools and equipment*** are prepared and used for setting in order activities. 4.5. Items are placed in their assigned locations. 4.6. After use, the items are immediately returned to their assigned locations. 4.7. Performance results are reported using appropriate formats. 4.8. Each item is regularly checked in its assigned location and order.
5. Perform shine activities.	5.1. Plan is prepared to implement shine activities. 5.2. Necessary tools and equipment are prepared and used for shinning activities. 5.3. ***Shine activity*** is implemented using appropriate procedures. 5.4. Performance results are reported using appropriate formats. 5.5. Regular shinning activities are conducted.

Variable	**Range**
Junior KPT	may include but not limited to: • 3S • 3MU (Mura, Muri and MUDA) • 4P (Policy, Procedure, People and Plant) • 4M (Material, Method, Man and Machine) • PDCA (Plan, Do, Check and Act)
OHS requirements	may include but not limited to: • Legislation/ regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard

	control and hazardous materials and substances. • Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices. • Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with workplace organization. • Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation.
Safety equipment and tools	may include but not limited to: • dust masks / goggles • glove • working cloth • first aid and safety shoes
Items	may include but not limited to: • tools • jigs/fixtures • materials/components • machine and equipment • manuals • documents • personal items (e.g. bags, lunch boxes and posters) • safety equipment and personal protective equipment • other items which happen to be in the work area
The appropriate procedures	may include but not limited to: • steps for implementing 3S (sort, set in order and shine) activities. • written, verbal and computer based or in some other format.
Unnecessary items	are not needed for current production or administrative operation and include but not limited to: • defective or excess quantities of small parts and inventory • outdated or broken jigs and dies • worn-out bits • outdated or broken tools and inspection gear • old rags and other cleaning supplies • electrical equipment with broken cords • outdated posters, signs, notices and memos some locations where unneeded items tend to accumulate may include but not limited to: • in rooms or areas not designated for any particular purpose • in corners next to entrances or exists • along interior and exterior walls • next to partitions and behind pillars • under the eaves of warehouses • under desks and shelves and in desk and cabinet drawers

	• near the bottom of tall stacks of items • on unused management and production schedule boards • in tools boxes that are not clearly sorted
Appropriate format	may include but not limited to: • all items, necessary and unnecessary items.
Red tag	A format prepared with a red color paper or card which is filled and attached temporarily on the unnecessary items until decision is made. The red tag catch people's attention because red is a color that stands out. So to fill and attach red tag on items, asks the following three questions: • Is this item needed? • If it is needed, is it needed in this quantity? • If it is needed, does it need to be located here?
Necessary items	Are required in the workplace for current production or administrative operation in the amount needed.
Tools and equipment	May include but not limited to: • paint • hook • sticker • signboard • nails • shelves • chip wood • sponge • broom • pencil • shadow board/ tools board
Shine activity	May include but not limited to: • Inspection • Cleaning • Minor maintenance may include: ➢ Tightening bolts ➢ Lubrication and Replacing missing parts

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Discuss how to organize KPT. • Describe the pillars of 5S. • Implement 3S in own workplace by following appropriate procedures.
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Kaizen principle, pillars and concept • Key characteristic of Kaizen • Elements of Kaizen • Wastes/MUDA • Basics of KPT • Aims, benefits and principles of KPT

	• Stages of KPT • Structure and role of the components of Junior KPT • Concept and parts of Kaizen board • Concept and benefits of 5S • The pillars of 5S • Three stages of5S application • Benefits and procedure of sorting activities • The concept and application of Red Tag strategy • OHS procedures • Benefits and procedure of set in order activities • Set in order methods/techniques • Benefits and procedure of shine activities • Inspection methods • Planning and reporting methods • Method of Communication
Underpinning Skills	Demonstrates skills of: • Participating actively in KPT • technical drawing • communication skills • planning and reporting own tasks in implementation of 3S • following procedures to implement 3S in own workplace • using sorting formats to identify necessary and unnecessary items • improving workplace layout following work procedures • preparing labels, slogans, etc. • reading and interpreting documents • observing situations • gathering evidence by using different means • recording activities and results using prescribed formats • working with others • solving problems by applying 3S • preparing and using Kaizen board • preparing and using tools and equipment to implement 3S
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

NTQF Level II

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Read and Interpret Engineering Drawings**
Unit Code	**IND BBS2 01 0117**
Unit Descriptor	This unit covers the competence to read and interpret engineering drawings applicable to a train manufacturing environment. This unit covers reading and interpretation of engineering drawings applicable to manufacturing or modification of components in an automotive environment. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment. Work is carried out in accordance with award provisions.

Elements	Performance Criteria
1. Prepare for work	1.1. Work instructions are used to determine job requirements 1.2. Job specifications are read and ***interpreted*** 1.3. Product/system/component/item to be manufactured/modified is identified 1.4. Engineering drawings are selected relevant to information required 1.5. ***WHS requirements***, including personal protection needs observed throughout the work 1.6. Correct equipment is identified and checked for safe use 1.7 ***Methods of identification***, codes, legends and diagrammatic representations
2. Read and interpret engineering drawings	2.1. Symbols, codes, legends and diagrammatic representations are correctly identified 2.2. Material specifications/finish and dimensions/tolerances are identified 2.3. Product/system/component/item represented by the drawing is correctly identified
3. Clean up work area and maintain equipment	3.1. Equipment and work area are cleaned and inspected for serviceable condition in accordance with workplace procedures 3.2. Unserviceable equipment is tagged and faults identified in accordance with workplace procedures 3.3. Operator maintenance is completed in accordance with manufacturer/component supplier specifications and site procedures

Variable	Range
Interpretation	May include manufacture/modification specifications
WHS requirements	are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, workplace environment and safety and enterprise first aid
Methods of identification	May include: • identification of symbols, codes, legends and diagrammatic representations
Personal protective equipment	May include: • prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	May include: • but are not limited to the conduct of operational risk assessment and treatments associated with site safety, working in proximity to others and site visitors
Emergency procedures	May include: • but are not limited to enterprise first aid requirements and site evacuation
Environmental requirements	May include: • but are not limited to waste management and clean-up management
Quality requirements	May include: • but are not limited to regulations, including Ethiopian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	May include: • Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Resources	May include: • manual and electronic viewing aids
Communications	May include: • but are not limited to verbal and visual instructions and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	May include: • schedules/plans/specifications, memos, material safety data sheets, diagrams or sketches • regulatory/legislative requirements pertaining to the train manufacturing industry, including Australian Design Rules • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Ethiopian Standards

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • reading and interpreting a range of engineering drawings covering both component manufacturing and modification
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • WHS and environmental regulations/requirements, equipment, material and personal safety requirements • common automotive terminology, symbols, codes, legends and diagrammatic representations • ISO standards and/or Ethiopia Design Rules and equipment safety requirements • design theory and its application to the workplace • engineering drawing procedures and interpretive techniques • site reporting procedures • work organisation and planning processes • enterprise quality processes
Underpinning Skills	Demonstrate skills to: • collect, organise and understand information related to work orders, plans and safety procedures for viewing engineering drawings • communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, and the reporting of work outcomes and problems • plan and organise activities, including the preparation and layout of the worksite and obtaining of equipment and drawing versions to avoid backtracking, workflow interruptions or time wastage • work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity • use mathematical ideas and techniques to correctly interpret drawing specifications • use pre-checking and inspection techniques to anticipate planning and scheduling problems and avoid

	wastage of time • use workplace technology related to the reading and interpretation of engineering drawings, including the use of specialist tooling, measuring equipment, computerised technology and communication devices and the reporting/ documenting of results
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Contribute to Production Goals**
Unit Code	**IND BBS2 02 0117**
Unit Descriptor	This unit describes the performance outcomes required to manage a personal workplace to help ensure production goals are met and to contribute to cost-reduction measures. It applies to those in an automotive manufacturing environment and involves the application of skills and knowledge at a production worker level.

Elements	Performance Criteria
1. Identify production goals	1.1 Workplace procedures relevant to the work area are identified and interpreted 1.2***Production indicators*** and timelines are identified and confirmed
2. Support the achievement of production goals	2.1 Work production and quality goals are monitored and variations responded to promptly 2.2 Work plans, workplace instructions, job specifications and schedules are applied and followed according to workplace procedures 2.3***Changes in work requirements*** are clarified with supervisor 2.4 Work goals are reviewed and continuous improvement recommendations are discussed with team members and supervisors
3. Contribute to cost reduction	3.1 ***Cost performance indicators*** are identified and confirmed 3.2 Cost-reduction targets are reviewed and modified if required 3.3 Production and quality problems are identified and work plan adjustments reported

Variable	Range
Production indicators	May include: • component specifications • production schedules • Workplace quality.
Changes in work requirements	May include: • line speed • personnel absences • process change • Short lead time.

Cost performance indicators	May include: • cycle time • productivity • Waste avoidance.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • follow workplace procedures relating to production goals • achieve production and built-in quality goals • respond to changing work requirements and production goals • contribute to cost-reduction initiatives relating to production goals • Identify production and quality problems.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • workplace procedures relating to contributing to production goals • production schedules, work plans and job specifications relating to production goals • workplace continuous improvement principles and production goals • production methods and quality goals • Workplace cost reduction and waste avoidance practices relating to production.
Underpinning Skills	Demonstrate skills of: • Reading skills to: ➢ interpret job requirements, workplace procedures, work instructions and production indicators ➢ Interpret production schedules and work plan. • Writing skills to: ➢ Legibly fill out production work sheets and reports. • Oral communication skills to: ➢ clarify workplace instructions and procedures ➢ report continuous improvement recommendations ➢ discuss changes to work requirements and performance indicators at team meetings ➢ inform supervisor of work production problems and possible resolution. • Numeracy skills to: ➢ identify production lead times, dates and production numbers ➢ interpret production specifications ➢ identify cost reduction targets ➢ Comprehend relevant unit quantity and measurements. • Planning and or gaining skills to:

	➢ achieve production continuous improvement and quality goals ➢ Apply workplace instructions and standardisation procedures. • Self-management skills to: ➢ Manage time in planning and preparing for work. • Problem-solving skills to: ➢ identify production problems aligned to production indicators ➢ Identify and apply workplace procedures and instructions.
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Read and Use Numbers in a Train Workplace**
Unit Code	**IND BBS2 03 0117**
Unit Descriptor	This unit describes the performance outcomes required to make simple calculations and numerical estimations relating to vehicle repairs, parts and labour quotations and preparatory calculations for workplace documentation. Work requires individuals to demonstrate entry level proficiency with numerically orientated problem-solving skills as they relate to vehicle repairs or workplace administrative documentation in an automotive workplace or setting.

Elements	Performance Criteria
1. Collect and organise numerical information	1.1. Relevant ***examples of numerical information*** are sourced 1.2. Numerical information is extracted from automotive workplace documents and compared to job requirements 1.3 Train bogie mechanical text and related numerical information collected from other sources is checked and identified as relevant to task
2. Interpret and present automotive numerical information	2.1. Procedures are established for the interpretation of numerical information 2.2. Numerical information is identified and interpreted 2.3. ***Calculations*** are carried out to establish comparable numerical information 2.4. Calculations are checked for accuracy against numerical information 2.5. Numerical and related information is applied to inspection or repair activity 2.6. Evidence for interpretation of results is presented
3. Prepare and present other workplace numerical and related information	3.1. ***Information and workplace documents*** that support automotive workplace administrative functions are sourced 3.2. Quantities/resources required in the workplace are estimated 3.3. The time required to complete the task is estimated 3.4. Settings for equipment and machinery are estimated and adjusted 3.5. Estimates or calculations are documented according to workplace documentation procedures

4. Read text that contains specialist information in a variety of formats	4.1. ***Specialist text*** is understood and correctly applied 4.2. Main points identified while ***reading*** are presented and applied as solutions or ideas 4.3. Meaning of new technical words is determined 4.4. Meaning of key words and phrases is determined 4.5. Text information of relevance to own role and responsibilities is identified and communicated to others as required

Variable	Range
Examples of numerical information	May include: • manufacturer/component supplier specifications • vehicle workshop / repair manuals • equipment / component specifications • automotive texts • information sourced from enterprise-specific documents • Equipment or material supply quotations.
Calculations	May include using simple mathematical equations with or without assistance of a calculator, relating to automotive oriented data and equipment, involving the use of: • counting • measurement • addition • subtraction • multiplication • division • whole numbers • fractions • using metric and non-metric measurement systems • Using measuring devices.
Information and workplace documents	May include: • numerical invoices • statements • stock records • job cards • personal records • time sheets • computer records, • Supplier invoices or statements.
Specialist text	May include: • workplace standard operating procedures • product manufacturer and component supplier specifications • instructions in vehicle workshop manuals • service and repair bulletins

	• industry codes of practice and bogie text.
Reading	May include: • reading and understanding text • reading and interpreting specific business details and documents (e.g. service manuals and work or job orders) for own use and passing on to others • reading and interpreting internal and external correspondence and taking action • reading and interpreting manufacturers' installation and fitting instructions for ancillary equipment • Interpreting written text to enable action to be taken.

Evidence Guide	
Critical Aspects of Competence	A person who demonstrates competency in this unit must be able to: • identify and source relevant technical information • gather and evaluate mathematical information relating to the problem or job requirement • devise and implement mathematical and numerical solutions for a minimum of three key vehicle or workplace functions • demonstrate mathematical and numerical solutions in workplace documentation. • read automotive-related or business text and take appropriate action • read equipment manuals to assist in operation and maintenance schedules • apply information from written specialist texts • extract key information and communicate it to others as required.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • workplace policies and procedures relating to the collection, storage and application of numerical information • basic mathematical concepts • metric and non-metric systems of measurement as they relate to numerical calculations for vehicle repairs • calculations including addition, multiplication, subtraction, division and percentages • calculations involving whole numbers and fractions
Underpinning Skills	Demonstrate skills of: • literacy skills to: ➢ understand written numerical workplace procedures and documents ➢ read and follow numerical information on written instructions, specifications, standard operating procedures, manuals, lists, mechanical drawings and other applicable reference documents

	• numeracy skills to: ➢ use mathematical ideas and techniques to count and measure ➢ select and apply mathematical processes, including at a minimum; addition, subtraction, multiplication and division • planning and organising skills to: ➢ plan and organise activities using numbers/calculations in plans and work requirements ➢ plan and organise activities relating to the reading of automotive specific text • problem-solving skills to: ➢ identifying suitable mathematical principles to solve numerical problems ➢ refer problems outside area of responsibility to appropriate person and suggest possible causes • self-management skills to: ➢ select and use appropriate written materials, processes and procedures ➢ recognise limitations and seek timely advice ➢ follow workplace documentation, such as codes of practice and operating procedures • technology skills to use workplace technology to: ➢ read in an automotive workplace ➢ assist with accessing and transferring information • teamwork skills to work with others and in a team by seeing and conveying information relating to the calculating, planning, sequencing and completion of the task • technical skills to collect, organise and understand information relating to collating figures, calculation and analysis • technology skills to: ➢ use available workplace technology relating to using numbers in an automotive workplace ➢ use workplace technology to assist with information transfer
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning..
Context of Assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Contribute to Quality Work Outcomes**
Unit Code	**IND BBS2 04 0117**
Unit Descriptor	This unit of competency covers the competence for the individual to be involved in the achievement of quality work outcomes and environmental compliance throughout work activities.

Elements	Performance Criteria
1. Plan and prepare for quality work outcomes	1.1. ***Quality procedures*** are identified from worksite/enterprise and team quality requirements 1.2. ***Performance indicators*** for individual work are identified and agreed with the appropriate persons 1.3. Work plans and processes which facilitate the achievement of quality work outcomes are adopted
2. Comply with environmental requirements	2.1. ***Environmental requirements*** for the work are interpreted and considered as a factor in work planning/preparation 2.2. ***Environmental monitoring and control procedures*** are implemented during the work processes 2.3. Environmental incidents and potential problems are identified and responded to or referred to others in accordance with worksite requirements
3. Achieve and maintain quality work outcomes	3.1. Responsibility for monitoring quality of outputs is accepted and changes implemented by the individual, in accordance with worksite procedures 3.2. Performance indicators are monitored, adjusted and agreed to meet changing circumstances 3.3. ***Loss and damage incidents*** are minimised by monitoring work processes, reporting incidents and applying local risk control processes 3.4. Procedural improvements and/or recommendations are communicated to relevant persons

Variable	Range
Quality procedures	May include: • worksite quality system documentation, work instructions, safe work procedures, product specifications, equipment maintenance schedules, technical procedures and adopted or specifically prepared standards
Performance indicators	May include: • Performance indicators are to account for issues of

	time, quantity, quality and cost factors and may include: • establishing time targets for own work, identifying reasonable criteria for evaluating own work outcomes, identifying measures to avoid wastage, identifying reasonable criteria to judge internal and/or external customer satisfaction and identifying processes to ensure a 'right first time' approach
Environmental requirements	May include: • state/territory legislation related to WHS • dust control, water quality, wastewater management, chemicals handling, noise/vibration, fuel/oil handling and disposal, waste management and rehabilitation
Environmental monitoring and control procedures	May include: • chemical management, dust suppression, water treatment, waste water processes, application of materials, compliance with noise/vibration standards and application of waste disposal procedures
Loss and damage incidents	May include: • personal injury, loss and damage of plant, equipment and materials
Communications	May include: • verbal, written, by telephone or by other means
Information/documents	May include: • manufacturer/component supplier specifications, enterprise operating procedures, supplier directories, parts catalogues, customer orders and industry/workplace codes of practice, Material Safety Data Sheets (MSDS) and HAZCHEM specifications
Environmental reports and documents	May include: • complaints register and incidental reporting procedures

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • identifying quality procedures and needs • identifying individual performance indicators • monitoring and adjusting performance indicators to meet changing circumstances • satisfying performance indicators • applying environmental control systems • processing recommendations for change • Communicating effectively with others involved in or affected by the work.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • quality systems in a workplace • typical loss and damage control systems • environmental legislative framework and licence provisions • work planning processes

	• Workplace Health and Safety (WHS) regulations/requirements, equipment, material and personal safety requirements • enterprise quality systems and processes • worksite environmental procedures and key constraints • worksite environment control measures
Underpinning Skills	Demonstrate skills to: • collect, organise and understand information related to researching and interpretive skills to locate, interpret and apply operational quality and environmental information • questioning and active listening skills, e.g. when obtaining information on quality and environmental working practices • plain English literacy and communication skills in relation to dealing with others involved in the work • technical literacy and communication skills sufficient to interpret and apply common industry terminology, and interpret symbols used for quality and environmental signage • plan and organise activities to plan performance indicators for individuals • work with others and in a team by involving team members in recommendations for improvement • use mathematical ideas and techniques to estimate value of improvements or costs of continuing with present procedures • establish diagnostic processes which include basic problem-solving skills to assess quality and environmental issues • use workplace technology related to the use of business technology
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Apply Safe Working Practices in Train Manufacturing Workplace**
Unit Code	**IND BBS2 05 0117**
Unit Descriptor	This unit describes the performance outcomes to apply basic safety and emergency procedures in order to contribute to a safe workplace for staff, customers and others. The unit involves the safety factors related to the use of automotive workplace hand tools and hand-held power tools, fixed equipment, chemicals, as well as vehicles and their use. This unit describes the performance outcomes required to identify and apply environmental regulations and sustainability best practice to work safely and avoid potential environmental hazards in an automotive workplace.

Elements	Performance Criteria
1. Apply basic safety procedures	1.1. Worksite ***policies and procedures*** for safety are followed and maintained while performing work tasks 1.2. Unsafe situations and ***hazards*** in the workplace are recognised and reported according to ***Workplace Health and Safety (WHS) requirements*** and regulations 1.3. Procedure and reporting guidelines for machinery and equipment breakdowns are identified 1.4. Fire and safety hazards are identified and precautions are taken or reported according to workplace policy and procedures 1.5. Storage and handling practices for dangerous goods and substances are identified and applied according to workplace policy, procedures and WHS requirements 1.6. Workplace policy regarding manual handling practice is identified and followed 1.7. Participation in WHS consultative arrangements established by company is exercised
2. Apply emergency procedures	2.1. Worksite policies and ***emergency procedures*** regarding illness or accidents are identified and applied 2.2. Safety alarms are identified

	2.3. Fire fighting appliances and equipment are located and identified for emergency use 2.4. Qualified persons are identified for contacting in the event of accident or sickness of customers or staff 2.5. Accident and incident documentation practices are followed according to worksite accident and injury procedures 2.6. Worksite evacuation procedures are identified
3. Identify and apply environment regulations	3.1. Reasons for ***ethical environmental practice*** in an train workplace are identified 3.2. Environmental responsibilities and penalties for individual breaches of legislation and regulations are identified 3.3. ***Documents and procedures*** relevant to environmental safety and hazards are applied 3.4. Safety equipment and other material necessary to support environmentally sound practices are identified and sourced
4. Identify and avoid contamination to water systems and land	4.1. Wastewater and contaminants are identified and prevented from entering water systems or contaminating land 4.2. Parts and components containing hazardous materials are drained and stored in a sealed container 4.3. Liquid wastes are put into storage or recycling containers and placed in an undercover bunded area 4.4. Spill kit is located and used to prevent water or land contamination 4.5. Spills are cleaned immediately and workplace is kept clean to prevent unintentional water or land contamination
5. Identify and avoid hazards to air quality	5.1. Hazardous airborne particles are identified, prevented, reduced and contained 5.2. Hazardous gases and fumes are identified, prevented, reduced and contained
6. Identify and avoid noise hazards	6.1. Hazardous noise activities are identified, prevented, reduced and contained 6.2. Hazardous noise activities are carried out within approved operating hours and regulations
7. Identify and apply sustainability best practice	7.1. Sustainability best practice is identified and applied to minimise waste and potential damage to the environment according to workplace policies and procedures

	7.2. Methods to reduce resource consumption (water, electricity, fossil fuels, chemicals) are identified and applied 7.3. Environmental damage and breaches of environmental regulations are reported

Variable	Range
Policies and procedures	May include: • hazard policies and procedures • emergency, fire and accident procedures • personal safety procedures • procedures for the use of personal protective clothing and equipment • use of motor vehicles • resolution procedures • job procedures and work instructions • safe working practices • Workplace operating procedures.
Hazards	May include: • sharp cutting tooling and instruments • electricity and water • toxic substances • damaged packing material or containers • broken or damaged equipment • flammable materials and fire hazards • lifting practices • spillages • Waste and debris especially on floors, ladders, trolleys.
WHS	May include: • protective clothing and equipment • use of tools and equipment • handling of material • use of fire-fighting equipment • first aid equipment • Hazard control, including control of hazardous materials and toxic substances.
Emergency procedures	May include: • sickness or accident reporting procedure • fire or workshop evacuation involving staff or customers • environmental incidents • Incidents and accidents involving harmful or hazardous substances.
Ethical environmental practice	May include: • legislative obligations • environmental legislation • health regulations

	• hazardous materials handling procedures • organisation insurance requirements • Discretion, judgement and problem-solving skills in undertaking environmentally sound work practices.
Documents and procedures	May include: • Material Safety Data Sheets (MSDS) • hazardous substances register • workplace environmental procedures and safety instructions • Dangerous goods code safe operating procedures.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • identify and assess hazardous situations and rectify, or report to the relevant persons • safely handle and store dangerous and hazardous goods and substances • apply safe manual handling practices • Identify fire safety equipment and procedures applicable to emergency situations in train manufacturing workplace follow workplace safety, accident, incident and evacuation procedures.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of • implications for WHS of business operations and customer relations • common automotive workplace safety terminology • WHS regulations, requirements, equipment and material and personal safety requirements • safe manual handling theories and practices • the location and application of fire fighting appliances in the workplace • dangerous goods and hazardous chemicals handling processes • workplace reporting procedures: • effects of pollution and methods to minimise it • environmental regulations and their implications for work being undertaken in train manufacturing workplace • characteristics and potential environmental impact of products, equipment and machinery used in the automotive workplace • philosophy of prevention, reuse, reduce, recycle • procedures for use of spill kit • reporting procedures for environmental damage and breaches of environmental regulations
Underpinning Skills	Demonstrate skills to: • adapt to emerging situations in an automotive workplace • identify sources of information, assistance and expert knowledge to expand knowledge, skills and

	understanding • literacy skills to: ➢ understand workplace safety-related procedures ➢ read, interpret and follow information on written instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents • planning and organising skills to: ➢ identify risk factors and take action to minimise risk ➢ plan and organise activities which implement and follow standard procedures • problem-solving skills to: ➢ recognise a workplace problem or a potential problem and take action ➢ refer problems outside area of responsibility to appropriate person and suggest possible causes ➢ establish diagnostic processes which recommend improvements for WHS issues • self-management skills to: ➢ select and use appropriate safety equipment, materials, processes and procedures ➢ recognise limitations and seek timely advice ➢ document and report numbers for emergency procedures ➢ follow workplace documentation, such as codes of practice and operating procedures • teamwork skills to: ➢ work with others and in a team by assisting and cooperating with team members ➢ work with diverse individuals and groups • technical skills to: ➢ collect, organise and understand technical information relating to recognising and reporting unsafe situations • technology skills to use workplace safety-related technology to assist with safe work practices • teamwork skills to collaborate and cooperate with other team members • technical skills to: ➢ collect, organise and interpret technical information related to recognising workplace situations that are potentially harmful to the environment ➢ use spill kits
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning

Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Identify Basic Body Faults Using Troubleshooting Processes**
Unit Code	**IND BBS2 06 0117**
Unit Descriptor	This unit describes the performance outcomes required to conduct troubleshooting processes to identify common locomotive faults or problems based on evidence provided by customers.

Elements	Performance Criteria
1. Identify nature of the fault or problem	1.1. ***Questioning techniques*** are applied to determine nature of the customer enquiry 1.2. ***Workplace Health and Safety (WHS) requirements*** are observed and applied throughout the work 1.3. Information relating to the ***fault*** or problem is gathered, documented and confirmed with customer 1.4. ***Troubleshooting process options*** are researched and those most appropriate to the circumstances are selected 1.5. Appropriate tools and equipment are selected and prepared
2. Identify fault using troubleshooting processes	2.1 train system or component relating to the fault or problem is identified 2.2. Troubleshooting processes are performed according to workplace procedures and without causing damage to components or systems to identify the likely cause of the fault or problem 2.3. Report is forwarded to persons for action according to workplace procedures
3. Clean up work area and finalise work processes	3.1. Final inspection is made to ensure work is to workplace expectations 3.2. Tools and equipment are checked and stored according to workplace expectations 3.3. Workplace documentation is completed according to workplace procedures

Variable	Range
Questioning techniques	May include: • open and closed questions, examining and important questions.
WHS requirements	May include: • protective wear and equipment

	• use of tools and equipment • handling of material • use of fire-fighting equipment • first aid equipment • Hazard control, including control of hazardous materials and toxic substances.
Fault	May include: • suspension, braking and motor
Troubleshooting process options	May include: • analysis of available information to provide a list of tests to perform • use of diagnostic flowcharts

Evidence Guide	
Critical Aspects of Competence	Demonstrate knowledge and skills to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • identify a range of basic locomotive faults • conduct troubleshooting procedures according to workplace, manufacturer and component supplier requirements • complete workplace documentation according to workplace requirements.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • WHS regulations, requirements, equipment and material, and personal safety requirements • identification of basic automotive systems • basic troubleshooting techniques and processes, including: ➢ customer questioning skills to identify train system in which fault lies ➢ use of simple problem-solving diagrams ➢ procedures for reporting and documenting findings
Underpinning Skills	Demonstrate skills of: • communication skills to: ➢ clarify workplace instructions and determine job requirements ➢ gain information from appropriate persons and assistance as required • learning skills to identify sources of information, assistance and expert knowledge • learning skills to: ➢ read, interpret and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents ➢ follow workplace documentation, such as codes of

	practice or operating procedures ➢ document work performed during troubleshooting operations • numeracy skills to assess tolerances and apply accurate measurements • planning and organising skills to ensure tasks are completed within an acceptable timeframe • problem-solving skills to seek information and assistance as required • self-management skills to: ➢ select and use appropriate equipment, materials, processes and procedures ➢ follow workplace documentation, such as codes of practice or operating procedures • teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks • technical skills to use tools and equipment relating to troubleshooting processes • technology skills to use technology to collect and provide information
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Carry out Gas Metal Arc Welding Procedures**
Unit Code	**IND BBS2 07 0117**
Unit Descriptor	This unit of competency covers the skills and knowledge required to carry out gas metal arc (MIG) welding procedures appropriate to the repairs conducted in the retail, service and repair streams. Work requires individuals to demonstrate some discretion, judgement and problem solving skills in lifting, safety equipment MIG welding procedures, environmental issues, repair procedures and vehicle operational requirements.

Elements	Performance Criteria
1. Prepare for work	1.1. Work instructions are used to determine job requirements including job sheets, quality and quantity of materials. 1.2. Job specifications are read and interpreted. 1.3. Workplace health and safety requirements, including personal protection needs, are observed throughout the work. 1.4. Materials for repairs and replacements are selected and inspected for quality. 1.5. Correct hand, power tools and safety equipment for safe use. 1.6. Products are determined to minimise waste materials. 1.7. Procedures are identified for maximising energy efficiency whilst completing the job.
2. Carry out gas metal arc (MIG) welding procedures	2.1. Gas metal arc (MIG) welding procedures are completed without causing damage to any component or system. 2.2. Information is accessed from appropriate sources to enable welding to be performed in accordance with vehicle and equipment manufacturer procedures. 2.3. ***MIG welding*** is carried out according to a standard that meets industry regulations/guidelines, WHS legislation, statutory legislation and enterprise policy/procedures.
3. Clean up work area and maintain equipment	3.1. ***Materials*** that can be reused are collected and stored. 3.2. Waste and scrap is removed following workplace procedures. 3.3. Equipment and work area are cleaned and inspected

	for serviceable conditions in accordance with workplace procedures. 3.4. Unserviceable equipment is tagged and faults identified in accordance with workplace. 3.5. Operator maintenance is completed in accordance with manufacturer's specifications and site ***procedures***. 3.6. Tooling is maintained in accordance with workplace procedures.

Variable	**Range**
MIG welding	May include: • MIG welders
Materials	May include: • MIG welding wire and gas
Work practices	May include: • workplace health and safety requirements include OHS legislation, material safety management systems, hazardous substances and dangerous goods code, local safe operating procedures and Australian Design Rules regulations • work is carried out in accordance with legislative obligations, environmental legislation, relevant health regulations, manual handling and lifting equipment procedures and organisation insurance requirements
Resources	May include: • hand tools, MIG welding machines and safety equipment • measuring equipment, marking out equipment and lifting equipment • MIG welding wire and appropriate gases
Personal protective equipment	that prescribed under legislation, regulations and enterprise policies and practices
Information/documents	May include: • job sheets • vehicle manufacturer specifications • enterprise operating procedures • component manufacture specifications • customer requirements • industry/workplace codes of practice • material safety data sheets • workplace procedures relating to reporting and communication • manufacturer specifications and operational procedures
Methods	May include: • MIG welding methods and preparation. • Methods should be applied under normal operating conditions

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • Interpret work order and locate and apply relevant information. • Apply safe handling requirements for equipment, products and materials, including use of personal protective equipment. • Read and interpret communication procedural information from job sheets to prepare for work. • Identify materials used in the work process. • minimise the risk of injury to self or others • prevent damage and wastage of goods, equipment and products • maintain required production output and product quality • Identify, set up, operate and maintain MIG welding, lifting and measuring equipment.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • WHS regulations/requirements • equipment safety requirements • personal safety requirements (e.g. toxic fumes/lead poisoning) • types of materials to be welded • types of MIG welding wire and their application • types of gases and their application • MIG welding processes, techniques and faults • equipment set up and maintenance procedures • workplace safety policies and procedures • workplace guidelines regarding acceptable tolerance levels to be considered as per job sheet and manufacturer specification • procedures for reporting faults and material defects
Underpinning Skills	Demonstrate skills to: • apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures • apply analytical skills required for the identification and analysis of technical information • apply questioning and active listening skills for example when obtaining information from customers • apply oral communication skills sufficient to convey information and concepts to customers • apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance • interact effectively with other persons both on a one-to-one basis and in groups, including understanding and

	responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal • establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and wastage • use mathematical ideas and techniques to calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks • use workplace technology related to welding systems, including the use of measuring equipment and communication devices and the reporting/documenting of results
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Carry out Manual Metal Arc Welding Procedures**
Unit Code	**IND BBS2 08 0117**
Unit Descriptor	This unit of competency covers the skills and knowledge required to carry out manual metal arc welding procedures The unit includes identification and confirmation of work requirement, preparation for work and the completion of welding and work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Elements	Performance Criteria
1. Prepare for work	1.1. Work instructions are used to determine job requirements, including job sheets, quality and quantity of materials. 1.2. Job specifications are read and interpreted. 1.3. ***WHS requirements,*** including ***personal protection*** needs, are observed throughout the work. 1.4. Materials for repairs and replacements are selected and inspected for quality. 1.5. Hand, power tooling and safety equipment are identified and checked for safe use. 1.6. Products are determined to minimise waste material. 1.7. Procedures are identified for maximising energy efficiency while completing the job. 1.8 ***Manual metal arc welding method***, material selection/ confirmation and preparation, the application of welding techniques and the operator maintenance of equipment
2. Carry out manual metal arc procedures	2.1. Information is accessed from sources to enable welding to be performed in accordance with vehicle and equipment manufacturer/component supplier procedures. 2.2. Manual metal arc welding is completed using approved methods and equipment, according to type of material and repairs required. 2.3. Manual metal arc welding procedures are completed without causing damage to component or system. 2.4. Manual metal arc welding is carried out according to a standard that meets industry regulations/guidelines,

	WHS requirements, legislation and enterprise policy/procedures. Emergency procedures related to this unit are to include, but are not limited to:
3. Clean up work area and maintain equipment	3.1. ***Materials*** that can be reused are collected and stored. 3.2. Waste and scrap is removed following workplace procedures. 3.3. Equipment and work area are cleaned and inspected for serviceable conditions in accordance with workplace procedures. 3.4. Unserviceable equipment is tagged and faults identified in accordance with workplace procedures. 3.5. Operator maintenance is completed in accordance with manufacturer/component supplier specifications and worksite procedures. 3.6. Tooling is maintained in accordance with workplace procedures.

Variable	**Range**
WHS requirements	May include: • protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous material and substances
Personal protection equipment	May include: • that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Manual metal arc welding method	May include: • equipment selection and preparation, material selection/ confirmation and preparation, the application of welding techniques and the operator maintenance of equipment
Materials	May include: • rods/electrodes and cleaning materials
Safe operating procedures	May include: • operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and worksite visitors
Emergency procedures	May include: • emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and worksite evacuation
Environmental requirements	May include: • waste management, noise, dust and clean-up management

Quality requirements	May include: • regulations, including, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	May include: • federal, state/territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	May include: • hand tooling, welding equipment, including manual metal arc welding machines, safety equipment, measuring equipment, marking out equipment and lifting equipment
Communications	May include, • verbal and visual instructions and fault reporting and may include worksite specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	May include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to manual metal arc welding • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • setting up, operating and maintaining manual metal arc welding, safety, lifting and measuring equipment • Completing a range of manual metal arc welding tasks to specification.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • WHS regulations/requirements, equipment, material and personal safety requirements • common automotive technology • types of metals • types of electrodes and their application • manual metal arc welding procedures

	• equipment maintenance procedures • workplace guidelines regarding acceptable tolerance levels to be considered as per job sheet and manufacturer/component supplier specifications • procedures for reporting faults and material defects • work organisation and planning processes • enterprise quality processes
Underpinning Skills	Demonstrate skills to: • apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures • apply analytical skills required for the identification and analysis of technical information • apply questioning and active listening skills for example when obtaining information from customers • apply oral communication skills sufficient to convey information and concepts to customers • apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance • interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal • establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and wastage • use mathematical ideas and techniques to calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks • use workplace technology related to welding systems, including the use of measuring equipment and communication devices and the reporting/documenting of results
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning.
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Conduct Oxy-acetylene, Thermal Heating and Cutting**
Unit Code	**IND BBS2 09 0117**
Unit Descriptor	This unit describes the performance outcomes required to set up an oxy-acetylene plant; follow safety requirements, including adjusting gauges to recommended working pressures and identifying flames; and conduct thermal heating and thermal cutting operations. Work applies to body repairers or dismantlers in the auto body repair and related vehicle industry environment. Skills and knowledge are to be used within the scope of the job role. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Elements	Performance Criteria
1. Determine job requirements	1.1. Job specifications and requirements are interpreted and determined from job sheets and work instructions 1.2. Appropriate Workplace Health and Safety (WHS) practices are identified and adhered to according to ***WHS, legislative and workplace requirements*** 1.3. ***Information*** is accessed from appropriate sources to enable oxy-acetylene safety, set-up, ***flame*** adjustment, thermal heating and thermal cutting operations 1.4. Approved methods and equipment are accessed and used
2. Plan and prepare work	2.1. Required ***resources*** are identified, obtained and inspected for safety and compliance with job specifications 2.2. Relevant plans, drawings and texts are selected and interpreted according to work plan and job sheet instructions 2.3. Correct working pressures and flame adjustment are applied and inspected for compliance with job specifications 2.4. Work is sequenced, prioritised and considered according to specification requirements 2.5. Work areas are prepared according to workplace requirements and procedures 2.6. Potential hazards are identified and prevention control measures selected according to work plan and workplace procedures

3. Conduct work	3.1. Oxy-acetylene set-up and flame adjustment operations are carried out according to industry standards 3.2. Thermal heating is carried out according to industry and workplace standards and job requirements 3.3. Thermal cutting operations are carried out according to industry and workplace standards
4. Finalise work processes	4.1. Work area is cleaned and tidied according to workplace procedures 4.2. Waste and scrap materials are removed following workplace and environmental requirements and procedures 4.3. Tools and equipment are checked and faulty items are identified and tagged 4.4. Equipment maintenance activities are completed according to workplace and manufacturer specifications

Variable	Range
WHS requirements	May include: • use of personal protective equipment and clothing • use of fire-fighting equipment • first aid equipment • hazard and risk control and elimination • systems covering the use of hazardous materials and substances • Manual-handling procedures, including for lifting and carrying.
Legislative requirements	May include: • environmental protection and regulations • duty of care • Industry codes of practice.
Workplace requirements	May include: • environmental management: waste disposal, recycling and re-use guidelines • emergency and evacuation procedures • equipment use procedures • legal obligations • maintenance and storage procedures • WHS requirements • workplace guidelines • policies and procedures relating to own role and responsibility • technical manuals • quality and continuous improvement processes • recording and reporting guidelines.

Information	May include: • equipment manufacturer specifications • workplace operating procedures • customer requirements • industry codes of practice • Material Safety Data Sheets (MSDS).
Flame	May include: • natural, carburising and oxidising.
Resources	May include: • hand tools • oxy-acetylene thermal heating equipment • oxy-acetylene thermal cutting equipment • job sheets, drawings and work instructions • Workplace or simulated workplace.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • achieve oxy-acetylene set-up, cutting and heating goals • achieve workplace quality goals • effectively apply problem-solving techniques • conduct oxy-acetylene safety, set-up and flame adjustment processes • conduct thermal cutting processes • conduct thermal heating processes • Use relevant tools and equipment.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • WHS and environmental regulations and workplace policies and procedures needed to carry out work in a manner that ensures the safety of people and equipment • safety procedures, specifications and schedules relating to work • workplace quality system documentation covering instructions, procedures, performance indicators and review processes or equivalent • environmental protection requirements relating to the disposal of waste material • established communication channels and protocols • problem-identification and resolution techniques • equipment safety requirements • personal protective equipment requirements • procedures for operating oxy-acetylene working pressure gauges for thermal cutting and thermal heating operations • different oxy-acetylene flames and their application • procedures for using oxy-acetylene thermal heating and thermal cutting equipment and associated safety requirements

Underpinning Skills	Demonstrate skills to: • understand quality procedures • read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other reference documents • numeracy skills to interpret oxy-acetylene pressure gauge and measuring equipment • planning and organising skills to: ➢ plan set-up, adjustment, cutting and heating requirements and follow job specification ➢ plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time ➢ identify risk factors and take action to minimise them • problem-solving skills to: ➢ refer problems outside area of responsibility to appropriate person and suggest possible causes ➢ seek information and assistance as required to solve problems • self-management skills to: ➢ recognise own limitations and seek advice ➢ follow workplace policies and documentation, such as industry code of practice and procedures • teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks • technical skills to use workplace tools and equipment relating to oxy-acetylene plant, thermal heating and thermal cutting of vehicle sectional repairs, including: ➢ specialist tools and equipment
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting. Assessment is to occur:

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Fabricate Parts for Vehicle Sub-assemblies**
Unit Code	**IND BBS2 10 0117**
Unit Descriptor	This unit describes the performance outcomes required to produce, finish and test parts and components for vehicle sub-assemblies. It applies to those in an automotive manufacturing environment and involves the application of skills and knowledge at a production worker level.

Elements	Performance Criteria
1. Plan and prepare	1.1 Work orders, job specifications and drawings are identified and confirmed 1.2 Tools, equipment and materials are identified, selected and prepared according to work order and job specification 1.3 Materials are inspected for quality, and defects identified and reported 1.4 Welding equipment is selected, inspected, tested and adjusted according to job requirements
2. Weld components	2.1 Components are welded as identified in working drawings according to ***workplace procedures*** 2.2 Welds are completed to workplace ***quality standards*** and weld specifications 2.3 Welded parts are checked against job specifications 2.4 Weld faults are identified and rectified according to workplace procedures
3. Assemble and finish sub-assemblies	3.1 Sub-assemblies are completed and checked against job specification 3.2 Sub-assembly fasteners are tensioned to specifications 3.3 Seals, adhesives and sealants are applied to ensure joints are leak free
4. Complete work processes	4.1 Final inspections are made and faulty sub-assemblies are reworked in line with workplace procedures 4.2 Tools, equipment and work areas are cleaned, maintained, and inspected according to workplace procedures 4.3 Waste material is collected and recycled or disposed of according to workplace procedures 4.4 Faulty equipment is identified, tagged and reported according to workplace procedures

	4.5 Work job sheets are completed and reported to supervisor

Variable	Range
Workplace procedures	May include: • procedures for recording and reporting the fabrication of parts for vehicle sub-assemblies • use of tools and equipment for fabricating parts for vehicle sub-assemblies • WHS requirements for fabricating parts for vehicle sub-assemblies • Workplace quality standards relevant to fabricating parts for vehicle sub-assemblies.
Quality standards	May include: • component fit and finish of fabricated parts for vehicle sub-assemblies • Weld quality of fabricated parts for vehicle sub-assemblies.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • train manufacturing workplace or simulated workplace • work instructions for fabricating vehicle sub-assemblies • vehicle sub-assembly components • vehicle sub-assembly specifications • tools, equipment and welding equipment relevant to fabricating vehicle sub-assemblies
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • WHS requirements relevant to fabricating vehicle sub-assemblies • types of vehicle sub-assemblies and their components • original equipment manufacturer operating procedures • component fabrication alignment procedures • welding types and techniques for fabricating vehicle sub-assemblies • assembly procedures of vehicle sub-assemblies
Underpinning Skills	Demonstrate skills of: • Reading skills to: ➢ interpret workplace procedures, Work Health and Safety (WHS) requirements, work orders, job specifications and drawings ➢ interpret equipment operating procedures and work instructions. • Numeracy skills to: ➢ identify part numbers and quantities ➢ interpret job specification measurements ➢ set welding equipment ➢ Use measuring equipment.

	• Writing skills to: ➢ complete faulty equipment tags ➢ Legibly complete production documents. • Oral communication skills to: ➢ inform team members of suitable fabrication sequence and methods. • Planning and organizing skills to: ➢ select and prepare equipment, materials and work area ➢ Fabricate parts for sub-assemblies within required timelines. • Problem-solving skills to: ➢ access, ➢ Interpret and apply work orders and work instructions. • Teamwork skills to: ➢ Work as part of a production team.
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Carry out Spot Welding Procedures**
Unit Code	**IND BBS2 11 0117**
Unit Descriptor	This unit of competency covers the skills and knowledge required to carry out spot welding procedures. The unit includes identification and confirmation of work requirement, preparation for work and the completion of spot welding and work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Elements	Performance Criteria
1. Prepare for work	1.1. Work instructions are used to determine job requirements, including job sheets, quality and quantity of materials. 1.2. Job specifications are read and interpreted. 1.3. ***WHS requirements***, including personal protection needs, are observed throughout the work. 1.4. Materials for repairs and replacements are selected and inspected for quality. 1.5. Hand, power tooling and safety equipment is identified and checked for safe use. 1.6. Products are determined to minimise waste material. 1.7. Procedures are identified for maximising energy efficiency while completing the job. 1.8 Spot welding methods being used include equipment election and preparation, material selection/confirmation and preparation, the application of spot welding techniques and the operator maintenance of equipment
2. Carry out spot welding procedures	2.1. Information is accessed from sources to enable welding to be performed in accordance with vehicle and equipment manufacturer/component supplier procedures. 2.2. Spot welding procedures are completed without causing damage to component or system. 2.3. Spot welding is carried out according to a standard that meets industry regulations/guidelines, WHS requirements, legislation and enterprise policy/procedures.

3. Clean up work area and maintain equipment	3.1. Material that can be reused is collected and stored. 3.2. Waste and scrap are removed following workplace procedures. 3.3. Equipment and work area are cleaned and inspected for serviceable conditions in accordance with workplace procedures. 3.4. Unserviceable equipment is tagged and faults identified in accordance with workplace procedures. 3.5. Operator maintenance is completed in accordance with manufacturer/component supplier specifications and worksite procedures. 3.6. Tooling is maintained in accordance with workplace procedures.

Variable	Range
WHS requirements	May include: • protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous material and substances
Spot welding methods	May include: • equipment election and preparation, material selection/confirmation and preparation, the application of spot welding techniques and the operator maintenance of equipment
Personal protective equipment	May include • that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	May include: • operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and worksite visitors
Emergency procedures	May include: • emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and worksite evacuation
Environmental requirements	May include: • waste management, noise, dust and clean-up management
Quality requirements	May include: • regulations, including internal company quality policy and standards and enterprise operations and procedures

Statutory/regulatory authorities	May include: • federal, state/territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	May include: • hand tooling, spot welding equipment, measuring equipment, marking out equipment and lifting equipment
Materials	May include: • steel products and cleaning materials
Communications	May include: • verbal and visual instructions and fault reporting and may include worksite specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	May include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to spot welding • regulatory/legislative requirements pertaining to automotive industry, including • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • Identifying, setting up, operating and maintaining spot welding, lifting and measuring equipment completing a range of spot welding tasks to specifications.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • WHS regulations/requirements, equipment, material and personal safety requirements • types of metals • spot welding equipment types and applications • spot welding processes and techniques • equipment maintenance procedures • workplace guidelines regarding acceptable tolerance levels to be considered as per job sheet and manufacturer/component supplier specifications • procedures for reporting faults and material defects

	• work organisation and planning processes • enterprise quality processes
Underpinning Skills	Demonstrate skills to: • apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures • apply analytical skills required for the identification and analysis of technical information • apply questioning and active listening skills for example when obtaining information from customers • apply oral communication skills sufficient to convey information and concepts to customers • apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance • interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal • establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and wastage • use mathematical ideas and techniques to calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks • use workplace technology related to spot welding, including the use of welding and measuring equipment and communication devices and the reporting/documenting of results
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning.
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Use Materials and Process Knowledge to Complete Work Operations**
Unit Code	**IND BBS2 12 0117**
Unit Descriptor	This competency covers the application of materials and process knowledge to the operation of the equipment, processes, materials and end product, so that work procedures and quality requirements can be met. It applies to workers in any sector of the industry. This competency is typically performed by all operators working either independently or as part of a work team. This competency applies to operators who maintain an overview of the production process, collect and prepare materials for the production process and observe and make judgements about the end product. The key factors are the delivery of the right material to the right place at the right time and ensuring there is no contamination of the materials. It includes: • checking job sheets for work to be done and identifying the priority in which jobs/ product will be made/completed • discussing work progress with other workers planning which jobs have the higher priority • utilising raw materials to produce products through a production process

Elements	Performance Criteria
1. Locate materials, equipment and workplace documentation for production process.	1.1 Workplace documentation requirements relating to production processes are followed. 1.2 The range of materials used and their physical forms are identified and located. 1.3 Necessary equipment and tools are acquired and appropriate work checking procedures identified. 1.4 Safety requirements are identified and followed for the materials and process to be employed.
2. Follow production process.	2.1 ***Procedures*** are followed for the production process. 2.2 Those parts of the production process are identified where extra care and attention is required. 2.3 The operating principles are identified and applied behind the equipment to be used.
3. Identify product features.	3.1Products are inspected for compliance with quality specifications.

	3.2 Products in terms of end purpose and relationship to workplace production output and economic value are identified. 3.3 Features of products are related to the production process.
4. Locate required equipment, materials and product storage.	4.1 The correct workplace procedures and safety precautions are followed for the storage of equipment, materials and products. 4.2 Incompatible materials are identified and separated in accordance with workplace procedures and practices. 4.3 Ensure equipment is cleaned prior to return to storage. 4.4 Waste materials are disposed of through approved means or product recycling.
5. Identify routine production and product faults.	5.1 The causes of production faults are identified and appropriate restorative or reporting action is taken. 5.2 The basis for product faults is established and potential causes are reported or addressed (as appropriate) due to inappropriate production methods and materials quality.
6. Follow shutdown procedures	6.1 Routine and emergency shutdown situations and procedures are differentiated. 6.2 The procedures to be followed are demonstrated in an emergency shutdown of the process and the alert procedures that accompany that process. 6.3 The appropriate procedures are followed for routine shutdowns for breaks and other routine short term discontinuances. 6.4 Appropriate personnel are notified of shutdowns and any workplace documentation is completed.

Variable	**Range**
Procedures	May include: • All operations are performed in accordance with procedures. • Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.
Tools and equipment	May include: • basic hand tools required for opening of material packaging • hand carts and trolleys • hoists/lifting equipment not requiring any special permits or licences rules or callipers

	• Relevant personal protective equipment inventory and workplace records systems.
Hazards	May include: • material spills • fumes, dusts/vapours • hazardous materials • manual handling hazards • Machinery hazards.
Problems	May include: • variations in materials • contamination of materials • variations in equipment operations • product faults • Equipment breakdowns.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • recognise the importance of material properties and qualities • recognise the importance of process conditions • apply approved procedures • Take appropriate action to resolve faults or report faults to appropriate personnel. • Explain and implement emergency shutdown procedures. • production standards are met consistently • upstream and downstream communication is timely • effective operating procedures and work instructions are read and interpreted correctly • problems are identified and appropriate action is taken (i.e. the problem is fixed or reported) • All safety procedures are followed.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • types of products made with different processes • the changes to raw materials during the process • production workflow sequences and materials demand • focus of operation of work systems and equipment • correct selection and use of equipment, materials, processes and procedures • Hazards of the materials and process and appropriate hazard control procedures.
Underpinning Skills	Demonstrate skills to/of: • recognise the importance of material properties and qualities recognise the importance of process conditions • apply approved procedures • take appropriate action to resolve faults or report faults to appropriate personnel

	• Explain and implement emergency shutdown procedures. • production standards are met consistently • upstream and downstream communication is timely • effective operating procedures and work instructions are read and interpreted correctly • problems are identified and appropriate action is taken (i.e. the problem is fixed or reported) • All safety procedures are followed. • This unit requires the ability to read and interpret typical product specifications, job sheets and material labels as provided to operators Writing is required to the level of completing workplace forms. • Basic numeracy is also required, e.g. to determine that two 25 kg bags are needed to make up a requirement for 50 kg.
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Demonstrate Knowledge of Petrol and Diesel Engine Operation**
Unit Code	**IND BBS2 13 0117**
Unit Descriptor	This unit describes the performance outcomes required to demonstrate knowledge of petrol and diesel engine components and systems, as well as of principles of engine operation and performance that enables an automotive electrician to understand engine operation when diagnosing faults in motor vehicles. The unit involves carrying out basic structured problem-solving techniques relating to electrical components and systems.

Elements	Performance Criteria
1. Identify resources	1.1. ***Sources of information*** are located to assist with understanding petrol and diesel engine system operation and performance 1.2. Relevance of information to engine type, and system operation and performance is confirmed
2. Apply knowledge of engine operation	2.1. Understanding of the operating principles of ***petrol and diesel engine operation*** is developed 2.2. Knowledge of ***engine components***, their function and operation in a petrol and diesel engine is applied 2.3. Knowledge of the ***relationship*** that a four-stroke cycle petrol and diesel engine has with the vehicle's ignition, starting, air and fuel delivery and cooling system is applied
3. Apply fault identification to engine performance	3.1. Components of petrol and diesel engines are identified 3.2. Engine principles are applied to vehicle inspection and service activities 3.3. Basic fault-finding procedures are performed on petrol and diesel engines

Variable	Range
Sources of information	May include: • workplace service information • automotive engine mechanical texts • vehicle workshop manuals • service bulletins • Magazine technical articles.

Petrol and diesel engine operation	May include:
	• engine construction
	• engine types and configuration
	• two-stroke and four-stroke
	• cycles of engine operation, including:
	  ➢ intake stroke
	  ➢ compression stroke
	  ➢ power stroke
	  ➢ exhaust stroke
	  ➢ firing order
	• ignition types, including:
	  ➢ spark
	  ➢ compression
	• engine mounting location, including:
	  ➢ front longitudinal
	  ➢ front transverse
	  ➢ mid transverse
	• measurement and performance, including:
	  ➢ bore and stroke
	  ➢ displacement
	  ➢ compression ratio
	  ➢ engine efficiency
	  ➢ torque versus horsepower.

Engine components	May include:
	• top of engine, including:
	  ➢ timing belt or chain
	  ➢ camshaft timing pulley
	  ➢ camshaft single and dual
	  ➢ rocker arms and shafts
	  ➢ intake valves and springs
	  ➢ exhaust valves and springs
	  ➢ cylinder head
	• front of engine, including:
	  ➢ crankshaft
	  ➢ crankshaft timing pulley
	  ➢ crankshaft pulley and balancer
	• rear of engine, including:
	  ➢ flywheel
	  ➢ starter ring gear
	• bottom of engine, including:
	  ➢ engine block
	  ➢ crankshaft
	  ➢ crankshaft balance weights
	  ➢ crankshaft main bearing journals
	  ➢ pistons
	  ➢ Connecting rods.

Relationship	May include: • ignition system: ➢ ignition timing ➢ Top Dead Centre (TDC) ➢ electrical sensors ➢ spark plugs ➢ glow plugs ➢ fuel injectors ➢ knock sensors ➢ starter motor system ➢ charging system ➢ coolant temperature sensor ➢ air intake ➢ fuel delivery ➢ exhaust emission ➢ Engine oil lubrication system.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • location of relevant sources of information on petrol and diesel engine components, systems and principles of operation • operating principles of petrol and diesel engine systems and components • various engine types and layouts in petrol and diesel powered vehicles • Relationship that a four-stroke cycle petrol and diesel engine has with the vehicle's ignition, starting, air and fuel delivery and cooling systems.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • classifications of engines, including: ➢ internal combustion ➢ reciprocating and rotary engines ➢ spark ignition and compression ignition engines ➢ engine cylinder arrangements • engine configurations, including: ➢ inline engines, vee-type engines and slant cylinder engines ➢ opposed cylinder engines • camshaft and valve locations, including: ➢ Overhead Cam (OHC) ➢ Overhead Valve (OHV) • engine operating principles, including: ➢ two-stroke cycles ➢ four-stroke cycles • combustion, including: ➢ air-fuel ratios and flame propagation ➢ direct and indirect fuel injection ➢ detonation and pre-ignition

	• engine measurement and performance, including:
	  ➢ bore and stroke
	  ➢ swept volume and engine volume
	  ➢ compression ratio
	  ➢ engine efficiency
	  ➢ torque and horsepower, including brake horsepower
	• operation of petrol engines, including:
	  ➢ engine components, including cylinder blocks, cylinders, pistons, cylinder heads, combustion chambers, inlet and exhaust manifolds, spark plugs, connecting rods, crankshafts, piston rings, gudgeon pins, camshafts, cams and flywheels
	• operation of diesel engines, including:
	  ➢ direct and indirect injection
	  ➢ swirl chambers
	  ➢ pre-combustion chambers

Underpinning Skills	Demonstrate skills of:
	• communication skills to:
	  ➢ communicate ideas and information relating to petrol and diesel engine terminology and procedures (verbal and written)
	  ➢ clarify workplace instructions and determine job requirements
	• apply questioning and active listening skills to obtain factual information from sources
	• literacy skills to:
	  ➢ understand technical information relating to engine operation
	  ➢ read and follow information in written instructions, specifications and other reference documents
	• problem-solving skills to:
	  ➢ refer problems outside area of responsibility to appropriate person
	  ➢ use and communicate basic mathematical ideas and techniques that relate to automotive systems and components
	• self-management skills to:
	  ➢ recognise limitations and seek timely advice
	  ➢ follow workplace documentation, such as workplace safe operating procedures
	• technical skills to:
	  ➢ collect, organise and understand technical information relating to:
	  ✓ recognising and reporting unsafe situations
	  ✓ petrol and diesel engine component and system identification, location and function
	  ➢ collect, organise and apply knowledge of information and concepts relating to petrol and diesel engine operation

	• technology skills to use information technology equipment to assist with research
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Apply Knowledge of Engine Science**
Unit Code	**IND BBS2 14 0117**
Unit Descriptor	This unit describes the performance outcomes required to apply knowledge of engine components and systems.

Elements	Performance Criteria
1. Apply relevant information of engine construction and operation to work activities	1.1. ***Components*** of an engine are identified during reconditioning activities 1.2. Functions of engine components are identified during reconditioning activities 1.3. ***Relationships*** between engine components are identified during reconditioning activities 1.4. Engine configurations are identified during reconditioning activities
2. Apply relevant information of engine diagnosis to work activities	2.1. Using knowledge of engine diagnosis, causes of engine component wear or failure are identified during reconditioning activities

Variable	Range
Components	May include: • components of a rotary engine • Components of a spark ignition or compression ignition engine.
Relationships	May include: • Where a component has an effect on another component, such as piston to connecting rod to crankshaft to flywheel.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • engine components • engine layouts • operating principles of a range of engine types • Common diagnosis procedures.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • classifications of engines, including: ➢ internal and external combustion ➢ rotary and reciprocating engines ➢ spark ignition and compression ignition engines ➢ engine cylinder arrangements • engine configurations, including: ➢ inline engines, vee-type engines and slant cylinder

	engines ➢ opposed cylinder engines • camshaft and valve locations, including: ➢ Overhead Cam (OHC) ➢ Overhead Valve (OHV) • engine operating principles, including: • combustion, including: ➢ air-fuel ratios and flame propagation ➢ direct and indirect fuel injection ➢ detonation and pre-ignition ➢ two-stroke and four-stroke cycles • engine measurement and performance, including: • bore and stroke, including: ➢ oversquare and under square engines ➢ crank throw ➢ swept volume and engine volume ➢ compression ratio ➢ engine efficiency, including volumetric efficiency, thermal efficiency and mechanical efficiency ➢ torque and horsepower, including brake horsepower • construction and operation of petrol engines, including: ➢ basic metallurgy relating to engines ➢ identification of metric and imperial threads ➢ engine components, including cylinder blocks, cylinders, pistons, cylinder heads, combustion chambers, inlet and exhaust manifolds, spark plugs, connecting rods, crankshafts, piston rings, gudgeon pins, camshafts, cams and flywheels • combustion chambers, including: ➢ L-head, bath-tub, wedge, trapezoidal, hemispherical and heron-type shapes ➢ multiple valve designs • construction and operation of diesel engines, including: ➢ direct and indirect injection ➢ swirl chambers ➢ pre-combustion chambers • engine diagnosis, including: ➢ wet and dry compression tests ➢ cylinder leakage tests ➢ cylinder power balance tests ➢ vacuum tests
Underpinning Skills	Demonstrate skills of: • technical skills to use diagnostic equipment • literacy skills to read and interpret written technical information • learning skills to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding

	• numeracy skills to use mathematical ideas and techniques to calculate distances, areas, volumes, power and torque • problem-solving skills to seek information and assistance as required to solve problems • self-management skills to: ➢ follow workplace documentation, such as codes of practice and operating procedures ➢ select and use appropriate equipment, materials, processes and procedures ➢ oil pressure tests ➢ sources of fluid leaks ➢ exhaust smoke diagnosis • engine noise diagnosis, including identifying: ➢ common engine noises ➢ common abnormal combustion noises
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Participate in Workplace Communication**
Unit Code	**IND BBS2 15 0117**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

Elements	Performance Criteria
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from ***appropriate sources***. 1.2 Effective questioning, active listening and speaking skills are used to gather and convey information. 1.3 Appropriate ***medium*** is used to transfer information and ideas. 1.4 Appropriate non- verbal communication is used. 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed. 1.6 Defined workplace procedures for the location and ***storage*** of information are used. 1.7 Personal interaction is carried out clearly and concisely.
2. Participate in workplace meetings and discussions	2.1 Team meetings are attended on time. 2.2 Own opinions are clearly expressed and those of others are listened to without interruption. 2.3 Meeting inputs are made consistent with the meeting purpose and ***protocols*** established. 2.4 ***Workplace interactions*** are conducted in a courteous manner. 2.5 Questions about simple routine workplace procedures and matters concerning working conditions of employment are asked and responded. 2.6 Meetings outcomes are interpreted and implemented.
3. Complete relevant work related documents	3.1 Range of ***forms*** relating to conditions of employment is completed accurately and legibly. 3.2 Workplace data is recorded on standard workplace forms and documents. 3.3 Basic mathematical processes are used for routine calculations. 3.4 Errors in recording information on forms/ documents are identified and properly acted upon. 3.5 Reporting requirements to supervisor are completed according to organizational guidelines.

Variable	Range
Appropriate sources	May include but not limited to: • Team members • Suppliers • Trade personnel • Local government and Industry bodies
Medium	May include but not limited to: • Memorandum • Circular • Notice • Information discussion • Follow-up or verbal instructions & Face to face communication
Storage	May include manual filing and computer-based filing systems
Protocols	May include but not limited to: • Observing meeting • Compliance with meeting decisions • Obeying meeting instructions
Workplace interactions	May include but not limited to: • Face to face • Telephone • Electronic and two way radio • Written including electronic, memos, instruction and forms, non-verbal including gestures, signals, signs and diagrams
Forms	May include but not limited to: • Personnel forms, telephone message forms, safety reports

Evidence Guide	
Critical Aspects of Competency	Demonstrates skills and knowledge to: • Prepare written communication following standard format of the organization • Access information using communication equipment • Make use of relevant terms as an aid to transfer information effectively • Convey information effectively adopting the formal or informal communication
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Effective communication • Different modes of communication • Written communication • Organizational policies • Communication procedures and systems • Technology relevant to the enterprise and the individual's work responsibilities

Underpinning Skills	Demonstrate skills to: • Follow simple spoken language • Perform routine workplace duties following simple written notices • Participate in workplace meetings and discussions • Complete work related documents • Estimate, calculate and record routine workplace measures • Do basic mathematical processes of addition, subtraction, division and multiplication • relate to people of social range in the workplace • Gather and provide information in response to workplace Requirements
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Work in Team Environment**
Unit Code	**IND BBS2 16 0117**
Unit Descriptor	This unit covers the skills, knowledge and attitudes to identify role and responsibility as a member of a team.

Elements	Performance Criteria
1. Describe team role and scope	1.1 The ***role and objective of the team*** are identified from available ***sources of information***. 1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources.
2. Identify own role and responsibility within team	2.1 Individual role and responsibilities within the team environment are identified. 2.2 Roles and responsibility of other team members are identified and recognized. 2.3 Reporting relationships within team and external to team are identified.
3. Work as a team member	3.1 Effective and appropriate forms of communications are used and interactions undertaken with team members who contribute to known team activities and objectives. 3.2 Effective and appropriate contributions are made to complement team activities and objectives, based on individual skills and competencies and ***workplace context***. 3.3 Protocols are observed in reporting using standard operating procedures. 3.4 Contribution is made to the development of team work plans based on an understanding of team's role and objectives and individual competencies of the members.

Variable	Range
Role and objective of team	May include but not limited to: • Work activities in a team environment with enterprise or specific sector • Limited discretion, initiative and judgment maybe demonstrated on the job, either individually or in a team environment
Sources of information	May include but not limited to: • Standard operating and/or other workplace procedures • Job procedures • Machine/equipment manufacturer's specifications and instructions

	• Organizational or external personnel • Client/supplier instructions • Quality standards • OHS and environmental standards
Workplace context	May include but not limited to: • Work procedures and practices • Conditions of work environments • Legislation and industrial agreements • Standard work practice including the storage, safe handling and disposal of chemicals • Safety, environmental, housekeeping and quality guidelines

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Operate in a team to complete workplace activity • Work effectively with others • Convey information in written or oral form • Select and use appropriate workplace language • Follow designated work plan for the job • Report outcomes
Underpinning Knowledge and Attitude	Demonstrate knowledge of: • Communication process • Team structure • Team roles • Group planning and decision making
Underpinning Skills	Demonstrate skills to: • Communicate appropriately, consistent with the culture of the workplace
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Develop Business Practice**
Unit Code	**IND BBS2 17 0117**
Unit Descriptor	This unit covers knowledge, skills and attitude required to establish a business operation from a planned concept. It includes researching the feasibility of establishing a business operation, planning the setting up of the business, implementing the plan and reviewing operations once commenced, customer handling, developing and maintaining business relationships.

Elements	Performance Criteria
1. Identify business opportunities and business skills	1.1 The concept of paradigm shift and means of divergent thinking are elaborated and strategies to look beyond the boundaries are discussed. 1.2 ***Unusual business opportunities*** are identified. 1.3 Feasibility on ***business skills and personal attributes*** is assessed and matched against those perceived as necessary for a particular business opportunity. 1.4 New behavior on how problems can be the pivotal source of business opportunity is elaborated and experience taken. 1.5 Assistance sought with feasibility study of ***specialist and relevant parties*** is discussed, as required. 1.6 Impact of emerging or changing technology, including e-commerce, on business operations is evaluated. 1.7 Practicability of business opportunity is assessed in line with perceived ***business risks***, returns sought, personal preferences and resources available. 1.8 Business plan is revised in accordance with the identified opportunities.
2. Plan for the establishment of business operation	2.1 Organizational structure and operations are determined and documented. 2.2 Procedures are developed and documented to guide operations. 2.3 Financial backing is secured for business operation. 2.4 Business legal and regulatory requirements are identified and compiled. 2.5 ***Human and physical resources*** required to commence business operation are determined. 2.6 Recruitment and procurement strategies are developed.

3. Implement Business Development Plan	3.1 Physical and human resources are obtained to implement business operation. 3.2 ***Operational unit*** is established to support and coordinate business operation. 3.3 Simulations on the development plan are well discussed and understood. 3.4 Implementation manual is discussed and understood. 3.5 Marketing the business operation is undertaken. 3.6 Monitoring process is developed and implemented for managing operation. 3.7 ***Legal documents*** are carefully maintained and relevant records kept and updated to ensure validity and accessibility. 3.8 Contractual procurement rights for goods and services including ***contracts with relevant people*** are negotiated and secured as required in accordance with the business plan. 3.9 Options for leasing/ownership of business premises are identified and contractual arrangements completed in accordance with the business plan.
4. Review implementation process and take corrective measures	4.1 Review process is developed and implemented for implementation of business operation. 4.2 Improvements in business operation and associated management process are identified. 4.3 Identified improvements are implemented and monitored for effectiveness.
5. Establish contact with customers and clarify needs of customer	5.1 Persuasion strategies are developed and discussed. 5.2 Welcoming customer environment is maintained and Customer is greeted warmly according to enterprise policies and procedures. 5.3 Information is provided to satisfy customer needs. 5.4 Information on customers and service history is gathered for analysis. 5.5 Customer data is maintained to ensure database relevance and currency. 5.6 Customer needs are accurately assessed against the products/services of the enterprise. 5.7 Customer details are documented clearly and accurately in required format. 5.8 Negotiations are conducted in a business-like and professional manner.

	5.9 Benefits for all parties are maximized in the ***negotiation through use of established techniques*** and in the context of establishing long term relationships. 5.10 The results of negotiations are communicated to appropriate colleagues and stakeholders within appropriate timeframes. 5.11 ***Opportunities to maintain regular contact*** with customers are identified and taken-up.
6. Develop and Maintain Business Relationship	6.1 Features and benefits of products/services provided by the enterprise are described/ recommended to meet customer needs. 6.2 Alternative sources of information/advice are discussed with the customer. 6.3 Information needed is pro-actively sought, reviewed and acted upon to maintain sound business relationships. 6.4 Agreements are honored within the scope of individual responsibility. 6.5 Adjustments to agreements are made in consultation with the customer and information shared with appropriate colleagues. 6.6 Relationships are nurtured through regular contact and use of effective interpersonal and communication styles.

Variable	Range
Unusual Business opportunities	May include but not limited to: • Public holidays • Ceremonies • Natural disaster • Campaigns
Business opportunities	May include but not limited to: • Expected financial viability • Skills of operator • Amount and types of finance available • Returns expected or required by owners • Likely return on investment • finance required • Lifestyle issues
Business skills and personal attributes	May include but not limited to: • Technical and/ or specialist skills • Managerial skills • Entrepreneurial skills • Taking calculated risk skills • Willingness to take calculated risks • Willingness to work under pressure

Specialist and relevant parties	May include but not limited to: • Chamber of commerce • Financial planners and financial institution representatives, business planning specialists and marketing specialists • Accountants • Lawyers and providers of legal advice • Government agencies • Industry/trade associations • Online gateways • Business brokers/business consultants
Business risks	May include but not limited to: • Occupational health and safety • Environmental risks • Relevant legislative requirements • Security of investment • Market competition • Security of premises/location • Supply and demand • Resources available
Human and physical resources	May include but not limited to: • Software and hardware • Office premises and equipment • Communications equipment • Specialist services through outsourcing, contracting and consultancy • Staff • Vehicles
Operational unit	May include but not limited to different departments, sections, teams, divisions, etc. staffed with required personnel and equipped to service and support business
Legal documents	May include but not limited to: • Partnership agreements, constitution documents, statutory books for companies (register of members, register of directors and minute books), certificate of Incorporation, franchise agreements and financial documentation, appropriate software for financial records • Occupational Health and Safety (OHS) • Recordkeeping including personnel, financial, taxation, and environmental
Contracts with relevant people	May include but not limited to: • business owners, suppliers, employees, agents, land owners, distributors, customers or any person with whom the business has, or seeks to have, a performance-based relationship
Negotiation techniques	May include but not limited to: • Identification of goals, limits • Clarification of needs of all parties

	• Listening and questioning • Non-verbal communication techniques • Appropriate language and situation • Bargaining • Developing options • Appropriate cultural behavior • Confirming agreements
Opportunities to maintain regular contact	to maintain regular contact with customers may include: • Informal social occasions • Ceremonies • Exhibitions • Industry functions • Association membership • Co-operative promotions • Program of regular telephone contact

Evidence Guide	
Critical Aspects of Competence	Demonstrates knowledge and skills in: • that a business operation has been planned and implemented from initial research of feasibility of the business and completion of the plan, through implementing the plan and commencing operations • the ability to evaluate the results of research and assess the likely viability and practicability of a business opportunity, taking into account the current business/market climate and resources available • treating customers in a courteous and professional manner • building and maintaining relationships to achieve successful business outcomes
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Paradigm shift • Unusual business opportunities • Feasibility study • Business structure • Federal and regional government legislative requirements affecting business operations, especially in regard to OHS, EEO, industrial relations and anti-discrimination • Procurement and recruitment strategy • Operational unit • Monitoring process • Business systems and operations • Relevant marketing, management, sales and financial concepts • Options for financing • Business premises and ownership • Lease • Methods for researching business opportunities

	• Methods of identifying relevant specialist services to complement the business • Advertising and promotion • Distribution and logistics • Terms and conditions in contractual agreement • Record keeping duties • Operational factors relating to the business (provision of professional services, products) • Customer need assessment • Source of information • Operational knowledge of enterprise policies and procedures in regard to: ➢ customer service ➢ dealing with difficult customers ➢ maintenance of customer databases ➢ allocated duties/responsibilities • General knowledge of the range of enterprise merchandise and services, location of telephone extensions and departments/sections • Basic operational knowledge of industry/workplace codes of practice in relation to customer service • negotiation and communication techniques appropriate to negotiations that may be of significant commercial value
Underpinning Skills	Demonstrate skills of: • Hunting and exploiting unusual business opportunities • Interpreting legal requirements, company policies and procedures and immediate, day-to-day demands • Conducting feasibility study • Developing new behavior • Using technology • Marketing skills • Business planning skills • Entrepreneurial skills • Time management skills • Customer handling skills • Communication skills including questioning, clarifying, reporting, and giving and receiving constructive feedback • Technical and analytical skills to interpret business documents, reports and financial statements and projections • Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities • Problem solving skills to develop contingency plans • Using computers and software packages to record and manage data and to produce reports • Interpreting business information, numeracy skills for data analysis to aid research • Negotiation to conduct business activities

	• Research to identify a business opportunity and to conduct a feasibility study • Analytical skills to assess personal attributes and to identify business risks • Observation skills for identifying appropriate people, resources and to monitor work • Persuasion and networking skills • Welcoming customers • Information seeking skills to collect, organize and understand information related to collating and analyzing customer information to identify needs • Establish diagnostic processes which identify and recommend improvements to customer service
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Bogie and Body Production/Assembly Support Work Level II	
Unit Title	**Standardize and Sustain 3S**
Unit Code	**IND BBS2 18 0117**
Unit Descriptor	This unit of competence covers the knowledge, skills and attitudes required by worker to standardize and sustain 3S to his/her workplace. It covers responsibility for the day- to-day operations of the workplace and ensuring that continuous improvements of Kaizen elements are initiated and institutionalized.

Elements	Performance Criteria
1. Prepare for work.	1.1 Work instructions are used to determine job requirements, including method, material and equipment. 1.2 Job specifications are read and interpreted following working manual. 1.3 ***OHS requirements***, including dust and fume collection, breathing apparatus and eye and ear personal protection needs are observed throughout the work. 1.4 ***Safety equipment and tools*** are identified and checked for safe and effective operation. 1.5 ***Tools and equipment*** are prepared and used to implement 3S.
2. Standardize 3S.	2.1 Plan is prepared and used to standardize 3S activities. 2.2 ***Tools and techniques*** to standardize 3S are prepared and implemented based on ***relevant procedures***. 2.3 Checklists are followed for standardize activities and ***reported*** to ***relevant personnel***. 2.4 The workplace is kept to the specified standard. 2.5 Problems are avoided by standardizing activities.
3. Sustain 3S.	3.1 Plan is prepared and followed to standardize 3S activities. 3.2 ***Tools and techniques*** to sustain 3S are discussed, prepared and implemented based on relevant procedures. 3.3 Workplace is inspected regularly for compliance to specified standard and sustainability of 3S techniques. 3.4 Workplace is cleaned up after completion of job and before commencing next job or end of shift. 3.5 Situations are identified where compliance to standards is unlikely and actions specified in procedures are taken. 3.6 Improvements are recommended to lift the level of compliance in the workplace. 3.7 Checklists are followed to sustain activities and report to relevant personnel.

	3.8 Problems are avoided by sustaining activities.

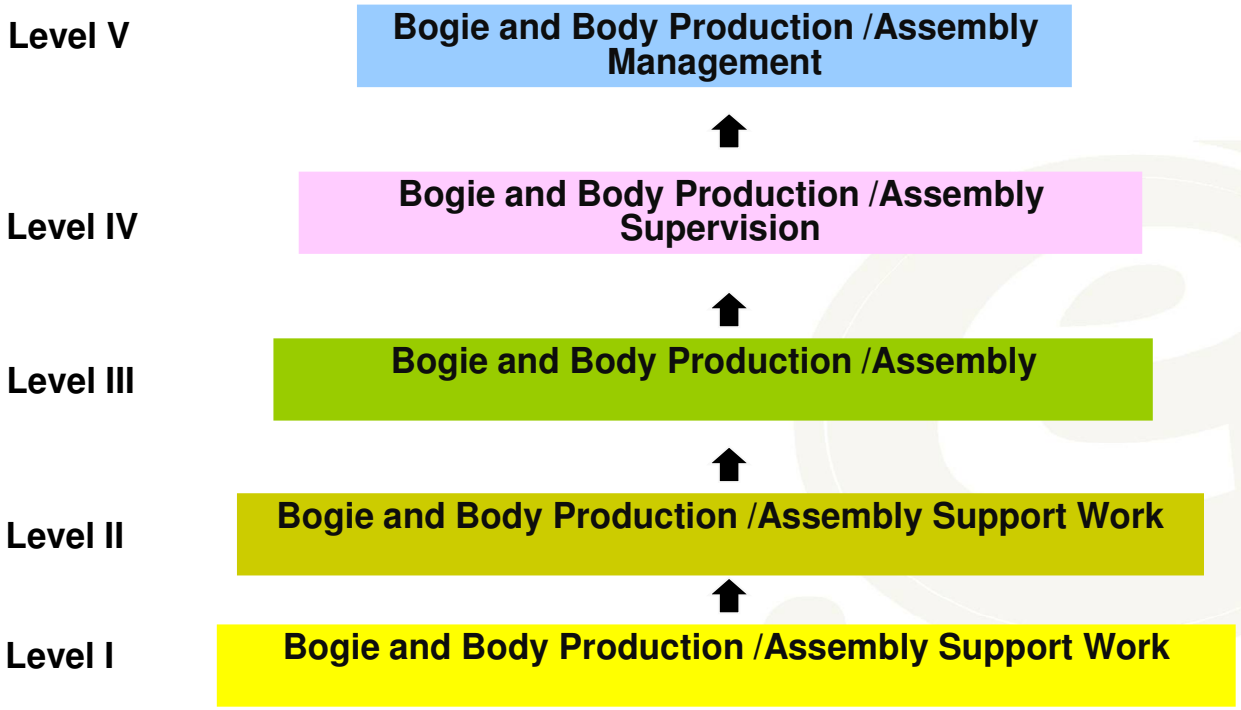
Variable	Range
OHS requirements	May include but not limited to: • Are to be in accordance with legislation/ regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of firefighting equipment, enterprise first aid, hazard control and hazardous materials and substances. • Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices. • Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with workplace organization. • Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation.
Safety equipment and tools	May include but not limited to: • dust masks/ goggles • glove • working cloth • first aid and safety shoes
Tools and equipment	May include but not limited to: • paint • hook • sticker • signboard • nails • shelves • chip wood • sponge • broom • pencil • shadow board/ tools board
Tools and techniques	May include but not limited to: • 5S Job Cycle Charts • Visual 5S • The Five Minute 5S • Standardization level checklist • 5S checklist • The five Whys and one How approach(5W1H) • Suspension • Incorporation and Use Elimination

Relevant procedures	May include but not limited to: • Assign 3S responsibilities • Integrate 3S duties into regular work duties • Check on 3S maintenance level • OHS measures such as signage, symbols / coding and labeling of workplace and equipment • Creating conditions to sustain your plans • Roles in implementation
Reporting	May include but not limited to: • verbal responses • data entry into enterprise database • brief written reports using enterprise report formats
Relevant personnel	May include but not limited to: • supervisors, managers and quality managers • administrative, laboratory and production personnel • internal/external contractors, customers and suppliers
Tools and techniques	May include but not limited to: • 5S slogans • 5S posters • 5S photo exhibits and storyboards • 5S newsletter • 5S maps • 5S pocket manuals • 5S department/benchmarking tours • 5S months • 5S audit • Awarding system • Big cleaning day • Patrolling system may include: ➢ Top management Patrol ➢ 5S Committee members and Promotion office Patrol ➢ Mutual patrol ➢ Self-patrol ➢ Checklist and Camera patrols

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Discuss the relationship between Kaizen elements. • Standardize and sustain 3S activities by applying appropriate tools and techniques.
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Elements of Kaizen • Ways to improve Kaizen elements • Benefits of improving kaizen elements • Relationship between Kaizen elements • The fourth pillar of 5S • Benefits of standardizing and sustaining 3S

	• Procedures for standardizing and sustaining 3S activities • Tools and techniques to sustain 3S • Relevant Occupational Health and Safety (OHS) and environment requirements • Plan and report • Method of communication
Underpinning Skills	Demonstrates skills of: • improving Kaizen elements by applying 5S • standardizing and sustaining procedures and techniques to avoid problems • technical drawing • procedures to standardizing 3S activities • analyzing and preparing shop layout of the workplace • standardizing and sustaining checklists • preparing and implementing tools and techniques to sustain 3S • working with others • reading and interpreting documents • observing situations • solving problems by applying 5S • communication skills • preparing labels, slogans, etc. • gathering evidence by using different means • using Kaizen board properly in accordance the procedure • reporting activities and results using report formats
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

BOGIE AND BODY PRODUCTION AND ASSEMBLY



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