TRAINING REGULATIONS

METAL STAMPING NC II

AUTOMOTIVE MANUFACTURING

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Superhighway, Taguig City, Metro Manila

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TRAINING REGULATIONS FOR
METAL STAMPING NC II

SECTION 1 METAL STAMPING NC II QUALIFICATION

The Metal Stamping NC II Qualification consists of competencies that a person must achieve to set up, conduct trial run and operate mechanical press; perform mechanical shearing operation which applies to a range of press operations including blanking, cutting-off, piercing/punching, trimming and bending; and perform mechanical press forming operation which applies to a range of press forming operations including piercing/punching, trimming, and forming/drawing.

The Units of Competency comprising this qualification include the following:

Code No.	BASIC COMPETENCIES
500311105	Participate in workplace communication
500311106	Work in a team environment
500311107	Practice career professionalism
500311108	Practice occupational health and safety procedures

Code No.	COMMON COMPETENCIES
ALT742201	Read & Interpret Engineering Drawings
ALT311202	Perform Mensuration and Calculation
ALT723203	Read, Interpret and Apply Specifications and Manuals
ALT723205	Perform Shop Maintenance

Code No.	CORE COMPETENCIES
MEE722301	Perform press machine setting
ALT 722309	Perform mechanical shearing operation
ALT 722310	Perform mechanical press forming operation

A person who has achieved this qualification is competent to be:

- Press worker; or
- Metal stamping press operator

SECTION 2 COMPETENCY STANDARDS

This section gives the details of the contents of the basic, common and core units of competency required in Metal Stamping NC II.

BASIC COMPETENCIES

UNIT OF COMPETENCY : PARTICIPATE IN WORKPLACE COMMUNICATION

UNIT CODE : 500311105

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
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 consistent with the meeting purpose and established ***protocols*** 2.4 ***Workplace interactions*** are conducted in a courteous manner 2.5 Questions about simple routine workplace procedures and maters concerning working conditions of employment are asked and responded to 2.6 Meetings outcomes are interpreted and implemented
3. Complete relevant work related documents	3.1 Range of ***forms*** relating to conditions of employment are 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

RANGE OF VARIABLES

VARIABLE	RANGE
1. Appropriate sources	1.1 Team members 1.2 Suppliers 1.3 Trade personnel 1.4 Local government 1.5 Industry bodies
2. Medium	2.1 Memorandum 2.2 Circular 2.3 Notice 2.4 Information discussion 2.5 Follow-up or verbal instructions 2.6 Face to face communication
3. Storage	3.1 Manual filing system 3.2 Computer-based filing system
4. Forms	4.1 Personnel forms, telephone message forms, safety reports
5. Workplace interactions	5.1 Face to face 5.2 Telephone 5.3 Electronic and two way radio 5.4 Written including electronic, memos, instruction and forms, non-verbal including gestures, signals, signs and diagrams
6. Protocols	6.1 Observing meeting 6.2 Compliance with meeting decisions 6.3 Obeying meeting instructions

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Prepared written communication following standard format of the organization 1.2 Accessed information using communication equipment 1.3 Made use of relevant terms as an aid to transfer information effectively 1.4 Conveyed information effectively adopting the formal or informal communication
2. Underpinning Knowledge and Attitudes	2.1 Effective communication 2.2 Different modes of communication 2.3 Written communication 2.4 Organizational policies 2.5 Communication procedures and systems 2.6 Technology relevant to the enterprise and the individual's work responsibilities
3. Underpinning Skills	3.1 Follow simple spoken language 3.2 Perform routine workplace duties following simple written notices 3.3 Participate in workplace meetings and discussions 3.4 Complete work related documents 3.5 Estimate, calculate and record routine workplace measures 3.6 Basic mathematical processes of addition, subtraction, division and multiplication 3.7 Ability to relate to people of social range in the workplace 3.8 Gather and provide information in response to workplace Requirements
4. Resource Implications	4.1 Fax machine 4.2 Telephone 4.3 Writing materials 4.4 Internet
5. Method of Assessment	5.1 Direct Observation 5.2 Oral interview and written test
6. Context of Assessment	6.1 Competency may be assessed individually in the actual workplace or through accredited institution

UNIT OF COMPETENCY: WORK IN TEAM ENVIRONMENT

UNIT CODE : 500311106

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes to identify role and responsibility as a member of a team.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Describe team role and scope	1.1 The ***role and objective of the team*** is 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 used and interactions undertaken with team members who contribute to known team activities and objectives
	3.2 Effective and appropriate contributions made to complement team activities and objectives, based on individual skills and competencies and ***workplace context***
	3.3 Observed protocols in reporting using standard operating procedures
	3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives and individual competencies of the members.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Role and objective of team	1.1 Work activities in a team environment with enterprise or specific sector 1.2 Limited discretion, initiative and judgment maybe demonstrated on the job, either individually or in a team environment
2. Sources of information	2.1 Standard operating and/or other workplace procedures 2.2 Job procedures 2.3 Machine/equipment manufacturer's specifications and instructions 2.4 Organizational or external personnel 2.5 Client/supplier instructions 2.6 Quality standards 2.7 OHS and environmental standards
3. Workplace context	3.1 Work procedures and practices 3.2 Conditions of work environments 3.3 Legislation and industrial agreements 3.4 Standard work practice including the storage, safe handling and disposal of chemicals 3.5 Safety, environmental, housekeeping and quality guidelines

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Operated in a team to complete workplace activity 1.2 Worked effectively with others 1.3 Conveyed information in written or oral form 1.4 Selected and used appropriate workplace language 1.5 Followed designated work plan for the job 1.6 Reported outcomes
2. Underpinning Knowledge and Attitude	2.1 Communication process 2.2 Team structure 2.3 Team roles 2.4 Group planning and decision making
3. Underpinning Skills	3.1 Communicate appropriately, consistent with the culture of the workplace
4. Resource Implications	The following resources **MUST** be provided: 4.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 4.2. Materials relevant to the proposed activity or tasks
5. Method of Assessment	Competency may be assessed through: 5.1 Observation of the individual member in relation to the work activities of the group 5.2 Observation of simulation and or role play involving the participation of individual member to the attainment of organizational goal 5.3 Case studies and scenarios as a basis for discussion of issues and strategies in teamwork
6. Context of Assessment	6.1 Competency may be assessed in workplace or in a simulated workplace setting 6.2 Assessment shall be observed while task are being undertaken whether individually or in group

UNIT OF COMPETENCY: PRACTICE CAREER PROFESSIONALISM

UNIT CODE : 500311107

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in promoting career growth and advancement.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Integrate personal objectives with organizational goals	1.1 Personal growth and work plans are pursued towards improving the qualifications set for the profession 1.2 Intra- and interpersonal relationships are maintained in the course of managing oneself based on performance ***evaluation*** 1.3 Commitment to the organization and its goal is demonstrated in the performance of duties
1. Set and meet work priorities	2.1 Competing demands are prioritized to achieve personal, team and organizational goals and objectives. 2.2 ***Resources*** are utilized efficiently and effectively to manage work priorities and commitments 2.3 Practices along economic use and maintenance of equipment and facilities are followed as per established procedures
2. Maintain professional growth and development	3.1 ***Trainings and career opportunities*** are identified and availed of based on job requirements 3.2 ***Recognitions*** are sought/received and demonstrated as proof of career advancement 3.3 ***Licenses and/or certifications*** relevant to job and career are obtained and renewed

RANGE OF VARIABLES

VARIABLE	RANGE
1. Evaluation	1.1 Performance Appraisal 1.2 Psychological Profile 1.3 Aptitude Tests
2. Resources	2.1 Human 2.2 Financial 2.3 Technology 2.3.1 Hardware 2.3.2 Software
3. Trainings and career opportunities	3.1 Participation in training programs 3.1.1 Technical 3.1.2 Supervisory 3.1.3 Managerial 3.1.4 Continuing Education 3.2 Serving as Resource Persons in conferences and workshops
4. Recognitions	4.1 Recommendations 4.2 Citations 4.3 Certificate of Appreciations 4.4 Commendations 4.5 Awards 4.6 Tangible and Intangible Rewards
5. Licenses and/or certifications	5.1 National Certificates 5.2 Certificate of Competency 5.3 Support Level Licenses 5.4 Professional Licenses

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Attained job targets within key result areas (KRAs) 1.2 Maintained intra - and interpersonal relationship in the course of managing oneself based on performance evaluation 1.3 Completed trainings and career opportunities which are based on the requirements of the industries 1.4 Acquired and maintained licenses and/or certifications according to the requirement of the qualification
2. Underpinning Knowledge	2.1 Work values and ethics (Code of Conduct, Code of Ethics, etc.) 2.2 Company policies 2.3 Company-operations, procedures and standards 2.4 Fundamental rights at work including gender sensitivity 2.5 Personal hygiene practices
3. Underpinning Skills	3.1 Appropriate practice of personal hygiene 3.2 Intra and Interpersonal skills 3.3 Communication skills
4. Resource Implications	The following resources **MUST** be provided: 4.1 Workplace or assessment location 4.2 Case studies/scenarios
5. Method of Assessment	Competency may be assessed through: 5.1 Portfolio Assessment 5.2 Interview 5.3 Simulation/Role-plays 5.4 Observation 5.5 Third Party Reports 5.6 Exams and Tests
6. Context of Assessment	6.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY : **PRACTICE OCCUPATIONAL HEALTH AND SAFETY PROCEDURES**

UNIT CODE : **500311108**

UNIT DESCRIPTOR : This unit covers the outcomes required to comply with regulatory and organizational requirements for occupational health and safety.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Identify hazards and risks	1.1 ***Safety regulations*** and workplace safety and hazard control practices and procedures are clarified and explained based on organization procedures 1.2 ***Hazards/risks*** in the workplace and their corresponding indicators are identified to minimize or eliminate risk to co-workers, workplace and environment in accordance with organization procedures 1.3 ***Contingency measures*** during workplace accidents, fire and other emergencies are recognized and established in accordance with organization procedures
2. Evaluate hazards and risks	2.1 Terms of maximum tolerable limits which when exceeded will result in harm or damage are identified based on threshold limit values (TLV) 2.2 Effects of the hazards are determined 2.3 OHS issues and/or concerns and identified safety hazards are reported to designated personnel in accordance with workplace requirements and relevant workplace OHS legislation

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
3. Control hazards and risks	3.1 Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace are consistently followed 3.2 Procedures for dealing with workplace accidents, fire and emergencies are followed in accordance with organization OHS policies 3.3 ***Personal protective equipment (PPE)*** is correctly used in accordance with organization OHS procedures and practices 3.4 Appropriate assistance is provided in the event of a workplace emergency in accordance with established organization protocol
4. Maintain OHS awareness	4.1 ***Emergency-related drills and trainings*** are participated in as per established organization guidelines and procedures 4.2 ***OHS personal records*** are completed and updated in accordance with workplace requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Safety regulations	May include but are not limited to: 1.1 Clean Air Act 1.2 Building code 1.3 National Electrical and Fire Safety Codes 1.4 Waste management statutes and rules 1.5 Philippine Occupational Safety and Health Standards 1.6 DOLE regulations on safety legal requirements 1.7 ECC regulations
2. Hazards/Risks	May include but are not limited to: 2.1 Physical hazards – impact, illumination, pressure, noise, vibration, temperature, radiation 2.2 Biological hazards- bacteria, viruses, plants, parasites, mites, molds, fungi, insects 2.3 Chemical hazards – dusts, fibers, mists, fumes, smoke, gasses, vapors 2.4 Ergonomics • Psychological factors – over exertion/ excessive force, awkward/static positions, fatigue, direct pressure, varying metabolic cycles • Physiological factors – monotony, personal relationship, work out cycle
3. Contingency measures	May include but are not limited to: 3.1 Evacuation 3.2 Isolation 3.3 Decontamination 3.4 (Calling designed) emergency personnel
4. PPE	May include but are not limited to: 4.1 Mask 4.2 Gloves 4.3 Goggles 4.4 Hair Net/cap/bonnet 4.5 Face mask/shield 4.6 Ear muffs 4.7 Apron/Gown/coverall/jump suit 4.8 Anti-static suits

VARIABLE	RANGE
5. Emergency-related drills and training	5.1 Fire drill 5.2 Earthquake drill 5.3 Basic life support/CPR 5.4 First aid 5.5 Spillage control 5.6 Decontamination of chemical and toxic 5.7 Disaster preparedness/management
6. OHS personal records	6.1 Medical/Health records 6.2 Incident reports 6.3 Accident reports 6.4 OHS-related training completed

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Explained clearly established workplace safety and hazard control practices and procedures 1.2 Identified hazards/risks in the workplace and its corresponding indicators in accordance with company procedures 1.3 Recognized contingency measures during workplace accidents, fire and other emergencies 1.4 Identified terms of maximum tolerable limits based on threshold limit value- TLV. 1.5 Followed Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace 1.6 Used Personal Protective Equipment (PPE) in accordance with company OHS procedures and practices 1.7 Completed and updated OHS personal records in accordance with workplace requirements
2. Underpinning Knowledge and Attitude	2.1 OHS procedures and practices and regulations 2.2 PPE types and uses 2.3 Personal hygiene practices 2.4 Hazards/risks identification and control 2.5 Threshold Limit Value -TLV 2.6 OHS indicators 2.7 Organization safety and health protocol 2.8 Safety consciousness 2.9 Health consciousness
3. Underpinning Skills	3.1 Practice of personal hygiene 3.2 Hazards/risks identification and control skills 3.3 Interpersonal skills 3.4 Communication skills
3. Resource Implications	The following resources must be provided: 4.1 Workplace or assessment location 4.2 OHS personal records 4.3 PPE 4.4 Health records
4. Method of Assessment	Competency may be assessed through: 5.1 Portfolio Assessment 5.2 Interview 5.3 Case Study/Situation
5. Context of Assessment	6.1 Competency may be assessed in the work place or in a simulated work place setting

COMMON COMPETENCIES

AUTOMOTIVE MANUFACTURING

UNIT TITLE: **READ, INTERPRET AND APPLY ENGINEERING DRAWINGS**.

UNIT CODE: ALT742201

UNIT DESCRIPTOR: This unit deals with identifying, interpreting and applying specification from Engineering blue prints or drawings that provides the measurements of the product and pattern that is to be produced.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Identify and access engineering drawings/ specification	1.1 Appropriate ***Engineering drawings*** are identified and accessed as per job requirements. 1.2 Version and date of drawing is checked to ensure correct specification and procedure are identified.
2. Interpret drawings	2.1 Relevant dimensions and sections of the drawings/ specifications are located in relation to the work to be conducted 2.2 Information in the manual are interpreted in accordance to industry practices
3 Apply information in the drawings & specifications	3.1 Engineering drawing is interpreted according to job requirements 3.2 Work steps are correctly identified in accordance with the specifications in the drawings. 3.3 Dimensional ***data*** and shape are applied according to the given task
4. Store drawings	4.1 The drawings and specification are stored properly to ensure prevention of damage, ready access and updating of information when required in accordance with company requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Engineering drawings	Kinds of drawings: 1.1 Casting drawing 1.2 Machining drawing 1.3 Project plan 1.4 Technical drawing
2. Data	Data includes but not limited to 2.1 Material specifications 2.2 Process specifications 2.3 Special instructions 2.4 Machining locating points 2.5 Clamping points 2.6 Amount of draft 2.7 Surface finish

EVIDENCE GUIDE

1.Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Identified and accessed drawings/specification 1.2 Interpreted drawings 1.3 Applied information in drawings 1.4 Stored drawings
1. Underpinning knowledge and attitudes	2.1 Types of drawings used in automotive manufacturing industry 2.2 Identification of symbols used in the drawings 2.3 Identification of units of measurements 2.4 Unit conversion 2.5 Attention to details, Perseverance, Honesty
3. Underpinning skills	3.1 Reading and comprehension skills required to identify and interpret engineering drawings and specifications 3.2 Accessing information and data
4. Resource implications	The following resources **MUST** be provided: 4.1 All drawings/engineering specifications relative to automotive manufacturing 4.2 Job order, requisitions 4.3 Product sample
5 Method of assessment	Competency **MUST** be assessed through: 5.1 Observation with questioning 5.2 Interview
6 Context of assessment	6.1 Assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines 6.2 Assessment may be conducted in the workplace or a simulated environment.

UNIT OF COMPETENCY: PERFORM MENSURATION AND CALCULATION

UNIT CODE: ALT311202

UNIT DESCRIPTOR: This unit includes identifying, caring for, handling, using and maintaining measuring instruments.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Select measuring instruments	1.1 Object or component to be measured is identified 1.2 Correct specifications are obtained from relevant source 1.3 Appropriate ***measuring instrument*** is selected according to job requirements
2. Carry out measurements and calculation	2.1 Measuring tools are selected in line with job requirements 2.2 Accurate measurements are obtained to job 2.3 ***Calculation*** needed to complete work tasks are performed using the four basic process of addition (+), subtraction (-), multiplication (x) and division (/). 2.4 Calculations involving fractions, percentages and mixed numbers are used to complete workplace tasks. 2.5 Numerical computation is self-checked and corrected for accuracy 2.6 Instruments are read to the limit of accuracy of the tool.
3. Maintain measuring instruments	3.1 Measuring instruments are kept free from corrosion 3.2 Measuring instruments are not dropped to avoid damage 3.3 Measuring instruments are cleaned before and after using.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Measuring instruments	Measuring instruments includes: 1.1 Multitester 1.2 Micrometer (In-out, depth) 1.3 Vernier caliper (Out, inside) 1.4 Dial Gauge with Mag. Std. 1.5 Straight Edge 1.6 Thickness gauge 1.7 Try square 1.8 Protractor 1.9 Height gauge 1.10 Steel rule 1.11 Shrink rule
2. Calculation	Kinds of part mensuration include: 2.1 Volume 2.2 Area 2.3 Displacement 2.4 Inside diameter 2.5 Circumference 2.6 Length 2.7 Thickness 2.8 Outside diameter 2.9 Taper 2. 10 Out of roundness 2.11 Shrinkage allowance

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Selected measuring instruments 1.2 Carried-out measurements and calculations. 1.3 Maintained measuring instruments
2. Underpinning knowledge and attitudes	2.1 Types of Measuring instruments and its uses 2.2 Safe handling procedures in using measuring instruments 2.3 Four fundamental operation of mathematics 2.4 Formula for Volume, Area, Perimeter and other geometric figures
3. Underpinning Skills	3.1 Caring and Handling measuring instruments 3.2 Calibrating and using measuring instruments 3.3 Performing calculation by Addition, Subtraction, Multiplication and Division 3.4 Visualizing objects and shapes 3.5 Interpreting formula for volume, area, perimeter and other geometric figures
4. Resource Implications	The following resources **MUST** be provided: 4.1 Workplace location 4.2 Measuring instrument appropriate to servicing processes 4.3 Instructional materials relevant to the propose activity
5. Method of assessment	Competency **MUST** be assessed through: 5.1 Observation with questioning 5.2 Written or oral examination 5.3 Interview 5.4 Demonstration with questioning
6. Context of assessment	6.1 Competency elements must be assessed in a safe working environment 6.2 Assessment may be conducted in a workplace or simulated environment

UNIT TITLE: **READ, INTERPRET AND APPLY SPECIFICATION AND MANUALS**.

UNIT CODE: ALT723203

UNIT DESCRIPTOR: This unit deals with identifying, interpreting and applying service specification manuals, maintenance procedure manuals and periodic maintenance manual.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Identify and access manual/ specification	1.1 Appropriate ***manuals*** are identified and accessed as per job requirements. 1.2 Version and date of manual is checked to ensure correct specification and procedure are identified.
2. Interpret manuals	2.1 Relevant sections, chapters of manuals/specifications are located in relations to the work to be conducted 2.2 Information and procedure in the manual are interpreted in accordance to industry practices
3 Apply information in manual	3.1 Manual is interpreted according to job requirements 3.2 Work steps are correctly identified in accordance with manufacturer specification 3.3 Manual data is applied according to the given task 3.4 All correct sequencing and adjustments are interpreted in accordance with information contained on the manual or specifications
4. Store manuals	4.1 Manual or specification are stored appropriately to ensure prevention of damage, ready access and updating of information when required in accordance with company requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Manuals	Kinds of manuals: 1.1 Manufacturer's specification manual 1.2 Repair manual 1.3 Maintenance Procedure Manual 1.4 Periodic Maintenance Manual

EVIDENCE GUIDE

1.Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Identified and accessed manual/specification 1.2 Interpreted manuals 1.3 Applied information in manuals 1.4 Stored manuals
2. Underpinning knowledge	2.1 Types of manuals used in automotive industry 2.2 Identification of symbols used in the manuals 2.3 Identification of units of measurements 2.4 Unit conversion
3. Underpinning skills	3.1.Reading and comprehension skills required to identify and interpret automotive manuals and specifications 3.2. Accessing information and data
4 Resource Implications	The following resources **MUST** be provided: 4.1 All manuals/catalogues relative to Automotive 4.2 Job order, requisitions 4.3 Actual vehicle or simulator
5 Method of assessment	Competency **MUST** be assessed through: 5.1 Observation with questioning 5.2 Interview
6 Context of assessment	6.1 Assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines 6.2 Assessment may be conducted in the workplace or a simulated environment.

UNIT OF COMPETENCY : PERFORM SHOP MAINTENANCE

UNIT CODE : ALT723205

UNIT DESCRIPTOR : This unit deals with inspecting and cleaning of work area including tools, equipment and facilities. Storage and checking of tools/ equipment and disposal of used supplies/materials are also incorporated in this competency.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables
1. Inspect/clean tools and work area	1.1 Cleaning solvent used as per workshop/tools ***cleaning requirement***
	1.2 **W*ork area*** is checked and cleaned
	1.3 Wet surface/spot in work area is wiped and dried
2. Store/arrange tools and shop equipment	2.1 Tools/equipment are checked and stored in their respective shelves/location
	2.2 Corresponding labels are posted and visible
	2.3 Tools are safely secured and logged in the records
3. Dispose wastes/used lubricants	3.1 Containers for used lubricants are visibly labeled
	3.2 Wastes/used lubricants are disposed as per workshop SOP
4. Report damaged tools/equipment	4.1 Complete inventory of tools/equipment is maintained
	4.2 Damaged tools/equipment/facilities are identified and repair recommendation is given
	4.3 Reports prepared has no error/discrepancy

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work area	Work areas include: 1.1 Workshop areas for servicing/repairing light and/or heavy vehicle and/or plant transmissions and/or outdoor power equipment 1.2 Open workshop/garage and enclosed, ventilated office area 1.3 Other variables may include workshop with: • Mess hall • Wash room • Comfort room
2. Cleaning requirement	2.1 Cleaning solvent 2.2 Inventory of supplies, tools, equipment, facilities 2.3 List of mechanics/technicians 2.4 Rags 2.5 Broom 2.6 Mop 2.7 Pail 2.8 Used oil container 2.9 Oiler 2.10 Dust/waste bin
3. Manuals	3.1 Vehicle/plant manufacturer specifications 3.2 Company operating procedures 3.3 Industry/Workplace Codes of Practice 3.4 Product manufacturer specifications 3.5 Customer requirements 3.6 Industry Occupational Health and Safety
4. Company standard operating procedure	Wearing of Personal protective equipment include: 4.1 Gloves 4.2 Apron 4.3 Goggles 4.4 Safety shoes

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Cleaned workshop tools/facilities 1.2 Maintained equipment, tools and facilities 1.3 Disposed wastes and used lubricants/fluid as per required procedure
2. Underpinning knowledge and attitudes	2.1 5 S or TQM 2.2 Service procedures 2.3 Relevant technical information 2.4 Safe handling of equipment and tools 2.5 Vehicle safety requirements 2.6 Workshop policies 2.7 Personal safety procedures 2.8 Fire extinguishers and prevention 2.9 Storage/disposal of hazardous/flammable materials 2.10 Positive Work Values (Perseverance, Honesty, Patience, Attention to Details)
3. Underpinning skills	3.1 Handling/Storing of tools/equipment/supplies and material 3.2 Cleaning grease/lubricants 3.3 Disposing of wastes and fluid 3.4 Preparing inventory of s/m and tools and equipment 3.5 Monitoring of s/m and tools/equipment
4. Resource implications	The following resources **MUST** be provided: 4.1 Workplace: Real or simulated work area 4.2 Appropriate Tools & equipment 4.3 Materials relevant to the activity
5. Method of assessment	Competency **MUST** be assessed through: 5.1 Written/Oral Questioning 5.2 Demonstration
6. Context of assessment	6.1 Competency must be assessed on the job or in a simulated environment. 6.2 The assessment of practical skills must take place after a period of supervised practice and repetitive experience.

CORE COMPETENCIES

UNIT OF COMPETENCY : PERFORM PRESS MACHINE SETTING

UNIT CODE : MEE722301

UNIT DESCRIPTOR: This unit covers the skills, knowledge and attitudes required to set-up press machines, conduct trial run, check the components for conformance to specification and replace worn/damaged tooling/dies. The unit applies to a range of press operations including blanking, cutting-off, piercing/punching, trimming, bending and forming/drawing.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables
1. Set up die on the press machine	1.1 ***Instructions*** are read, interpreted and understood correctly. 1.2 Prepare die, die accessories, die attachments, tools, installing bolts, transport and lifting equipment. 1.3 The die is set on the press machine according to standard operating procedure; 1.4 Machine accessories/ attachments are selected and installed to meet requirements of the ***operation.*** 1.5 Machine is adjusted to meet specifications and operational requirements.
2. Conduct trial run	2.1 Trial run is conducted in accordance with prescribed operating procedures 2.2 First-off samples are measured for compliance with quality standards, and ***adjustments*** are made to ensure compliance with specification 2.3 Safety practices are followed in accordance with OHS requirements
3. Replace worn/damaged tooling or dies	3.1 Abnormal machine operation is noted and reported to concerned personnel 3.2 Worn or damaged tooling is identified and reported as required 3.3 Safety practices are followed in accordance with OHS requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Instructions	Instructions include but not limited to: 1.1 drawings 1.2 job orders 1.3 job sheets 1.4 equivalent instructions
2. Operation	Press machine operation include but not limited to: 2.1 blanking 2.2 cutting –off 2.3 piercing/punching 2.4 trimming 2.5 bending 2.6 forming/drawing
3. Adjustments	Adjustments are made in 3.1 ram shut height 3.2 feed/guide mechanism setting 3.3 die clearance/alignment

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Set up die and machine 1.2 Conducted trial run 1.3 Replaced worn/damaged tooling or die
2. Underpinning knowledge	2.1 Types and characteristics of press machines and accessories 2.2 Tools and equipment used in setting the machine 2.3 Die and press machine setting techniques and procedures 2.4 Press machine operations 2.4 Feed stocks and their characteristics 2.5 Techniques and tools used in measuring samples 2.6 Abnormal condition of die, machine or material 2.7 Signs of tool wear 2.8 Safety practices and personal protective equipment 2.9 Hazards and control measures associated with operating machines 2.10 Perseverance and Honesty in the Workplace
3. Underpinning skills	3.1 Interpreting drawings, job sheets, standard operating procedures, specifications, safe working procedures and other relevant references 3.2 Following oral instructions 3.3 Identifying worn/damaged tooling or dies 3.4 Using hand tools 3.5 Using measuring instruments
4. Resource implication	The following resources MUST be provided: 4.1 Tools, equipment and materials relevant to the activity 4.2 Drawings, job sheets or instructions 4.3 Personal Protective Equipment
5. Method of assessment	Competency must be assessed through: 5.1 Observation with questioning 5.2 Portfolio
6. Context of assessment	Competency may be assessed at work or in a simulated workplace setting.

UNIT OF COMPETENCY : PERFORM MECHANICAL SHEARING PRESS OPERATIONS

UNIT CODE : ALT722309

UNIT DESCRIPTOR: This unit covers the skills, knowledge and attitudes required to conduct pre-start checks, select feed stock materials, operate and monitor basic press operations. The unit applies to a range of press operations including blanking, cutting-off, trimming and bending

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables
1. Secure job order, part drawings and instructions	1.1 Job order and ***instructions*** are correctly interpreted and understood. 1.2 Dimensional and task requirements are understood including machine set up and parameters.
2. Conduct machine settings and set-up checks	2.1 Pre-start checks are undertaken to standard operating procedure. 2.2 Templates, stoppers and cutting guides are measured and installed firmly in place. 2.3 Safety procedures are observed and all safety equipment is checked for correct operation 2.4 Machine check up results are recorded in accordance with company procedures
3. Select steel feed stock materials	3.1 Materials are selected in conformance to job order specifications and instructions. 3.2 Materials stocks are counted to ensure availability of sufficient quantities of materials to meet job requirements
4. Perform shearing press operations	4.1 Machine is started up safely and correctly in accordance with standard operating procedures. 4.2 Machine is operated in accordance with job instructions or standard operating procedures. 4.3 Feed stock are loaded and maintained consistent with production requirements. 4.4 Machine output is unloaded safely to standard operating procedures. 4.5 Machine output is handled and stored in a manner not likely to cause damage. 4.6 Production data is recorded to standard operating procedures.

5.	Monitor machine operation	5.1	Machine ***operation*** is monitored for safe and correct operation in accordance with standard operating procedures.
		5.2	Deviations and faults are identified and reported in accordance with standard operating procedures.
		5.3	Safety procedures and work practices are followed in accordance with Occupational Health and Safety (OHS) requirements.
		5.4	Emergency procedures are understood and followed in accordance with standard operating procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Instructions	Instructions include but not limited to: 1.1 drawings 1.2 job instructions 1.3 specifications 1.4 equivalent instructions
2. Operation	Mechanical shearing press machine operation include but not limited to: 2.1 blanking 2.2 cutting –off 2.3 trimming 2.4 bending

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Secured job instructions 1.2 Conducted pre-start checks 1.3 Selected feed stock materials 1.4 Performed shearing press operations 1.5 Monitored machine operation
2. Underpinning knowledge	2.1 Types and characteristics of press machines, accessories and attachments 2.2 Shearing machine setting procedures 2.3 Shearing machine operating procedures 2.4 Feed stocks and their characteristics 2.5 Techniques and tools used in measuring process output 2.6 Shearing machine tooling 2.7 Signs of tool wear 2.8 Safety practices and personal protective equipment 2.9 Hazards and control measures associated with operating machines 2.10 Emergency procedures 2.11 First aid 2.12 Perseverance and Honesty in the workplace
3. Underpinning skills	3.1 Interpreting drawings, job sheets, standard operating procedures, specifications, safe working procedures and other relevant references 3.2 Following oral instructions 3.3 Identifying worn/damaged tooling or dies 3.4 Using hand tools 3.5 Measuring workpieces 3.6 Applying first aid measures
4. Resource implication	The following resources **MUST** be provided: 4.1 Tools, equipment and materials relevant to the activity 4.2 Drawings, job sheets or instructions 4.3 Personal Protective Equipment
5. Method of assessment	Competency **MUST** be assessed through: 5.1 Observation with questioning 5.2 Portfolio
6. Context of assessment	Competency may be assessed at work or in a simulated workplace.

UNIT OF COMPETENCY : PERFORM MECHANICAL PRESS FORMING OPERATIONS

UNIT CODE : ALT722310

UNIT DESCRIPTOR: This unit covers the skills, knowledge and attitudes required to conduct pre-start checks, select feed stock materials, operate and monitor forming press operations. The unit applies to a range of press forming operations including piercing/punching, trimming, and forming/drawing.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables
1. Secure job order, part drawings and instructions	1.1 Job order and ***instructions*** are correctly interpreted and understood 1.2 Dimensional and task requirements are understood including machine set up and parameters.
2. Conduct machine settings and set-up checks	2.1 Prior to machine start up, checks are carried out according to standard operating procedure. 2.2 Dies are checked for proper set-up, centering, clamping and stability. 2.3 Safety procedures are observed and all safety equipment is checked for correct operation 2.4 Machine check up results are recorded in accordance with workplace procedures
3. Inspect delivered steel feed stock materials	3.1 Delivered steel materials are inspected to assure conformance to job order specifications and instructions. 3.2 Materials stocks are counted to ensure availability of sufficient quantities of materials to meet job requirements.
4. Perform press operations	4.1 Inspect condition of die, clamping devices and machine set up before press machine is started up safely and correctly in accordance with standard operating procedures. 4.2 Machine is operated in accordance with job instructions or standard operating procedures. 4.3 Steel feed stock are loaded and maintained consistent with production requirements. 4.4 Machine output is inspected and unloaded safely to standard operating procedures. 4.5 Machine output is handled and stored in a manner not likely to cause damage. 4.6 Production data is recorded to standard operating procedure

5. Monitor machine operation	5.1 Machine ***operation*** is monitored for safe and correct operation in accordance with standard operating procedures. 5.2 Deviations and faults are identified and reported in accordance with standard operating procedures. 5.3 Safety procedures and work practices are followed in accordance with Occupational Health and Safety (OHS) requirements. 5.4 Emergency procedures are understood and followed in accordance with standard operating procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Instruction	Instructions include but not limited to: 1.1 drawings 1.2 job instructions 1.3 specifications 1.4 equivalent instructions
2. Operation	Mechanical forming press machine operation include but not limited to: 2.1 piercing/punching 2.2 Drawing / Forming 2.3 Trimming

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Secured job instructions 1.2 Conducted pre-start checks 1.3 Selected feed stock materials 1.4 Performed press operations 1.5 Monitor machine operation
2. Underpinning knowledge and attitudes	2.1 Types and characteristics of press machines, accessories and attachments 2.2 Machine setting procedures 2.3 Machine operating procedures 2.4 Feed stocks and their characteristics 2.5 Techniques and tools used in measuring process output 2.6 Machine tooling 2.7 Signs of tool wear 2.8 Safety practices and personal protective equipment 2.9 Hazards and control measures associated with operating machines 2.10 Emergency procedures 2.11 First aid 2.12 Perseverance and Honesty in the workplace
3. Underpinning skills	3.1 Interpreting drawings, job sheets, standard operating procedures, specifications, safe working procedures and other relevant references 3.2 Following oral instructions 3.3 Identifying worn/damaged tooling or dies 3.4 Using hand tools 3.5 Measuring workpieces 3.6 Applying first aid measures
4. Resource implication	The following resources **MUST** be provided: 4.1 Tools, equipment and materials relevant to the activity 4.2 Drawings, job sheets or instructions 4.3 Personal Protective Equipment
5. Method of assessment	Competency **MUST** be assessed through: 5.1 Observation with questioning 5.2 Portfolio
6. Context of assessment	Competency may be assessed at work or in a simulated workplace.

SECTION 3. TRAINING STANDARDS

These guidelines are set to provide the Technical and Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for Metal Stamping NC II.

3.1 CURRICULUM DESIGN

Course Title: **METAL STAMPING** NC Level: **NC II**

Nominal Training Duration: **18 Hours** (Basic Competencies)
20 Hours (Common Competencies)
256 Hours (Core Competencies)

This qualification is designed to develop knowledge, desirable attitudes and skills in Metal Stamping NC II Qualification specifically to set up, conduct trial run and operate mechanical press; perform mechanical shearing operation which applies to a range of press operations including blanking, cutting-off, piercing/punching, trimming and bending; and perform mechanical press forming operation which applies to a range of press forming operations including piercing/punching, trimming, and forming/drawing.

Basic competencies such as: Participate in workplace communication; Work in a team environment; Practice career professionalism; and Practice occupational health and safety are included.

It also includes common competencies such as: Read, Interpret and Apply Engineering Drawings; Perform Mensuration and Calculation Read; Interpret and Apply Specifications and Manuals and; Perform Shop Maintenance.

To obtain this, all units of competency prescribed for this qualification must be achieved.

BASIC COMPETENCIES

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Participate in workplace communication	1.1 Obtain and convey workplace information. 1.2 Complete relevant work related documents. 1.3 Participate in workplace meeting and discussion	• Group discussion • Interaction • Lecture • Reportorial	• Written test • Practical/ performance test • Interview
2. Work in a team environment	2.1 Describe and identify team role and responsibility in a team. 2.2 Describe work as a team member.	• Group discussion • Case studies • Simulation	• Written test • Observation • Simulation • Role playing • Case studies

3. Practice career professionalism	3.1 Integrate personal objectives with organizational goals. 3.2 Set and meet work priorities. 3.3 Maintain professional growth & development.	• Group Discussion • Interaction • Simulation •Demonstration •Self-paced instruction •Structured activity • Film viewing	• Role playing • Interview • Written examination • Portfolio
4. Practice occupational health and safety	4.1 Evaluate hazard and risks 4.2 Control hazards and risks 4.3 Maintain occupational health and safety awareness	• Interactive-lecture • Simulation • Symposium • Group dynamics • Film viewing • Situation analysis • Self-paced instruction	• Situation analysis • Interview • Practical examination • Written examination

COMMON COMPETENCIES

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Read, Interpret and Apply Engineering Drawings	1.1 Identify and access engineering drawings/ specification 1.2.Interpret drawings 1.3.Apply information in the drawings & specifications 1.4 Store drawings	• Lecture/ Demonstration • Dual training • Practical exercises	• Direct observation • Written examination • Oral examination
2. Perform Mensuration and Calculation	2.1. Select measuring instrument 2.2 Carry out measurement and calculations. 2.3. Maintain measuring instruments	• Demonstration • Practical exercises	• Written test • Oral questioning • Direct observation
3. Read, Interpret and Apply Specifications and Manual	3.1 Identify/accessed manuals and interpret data and specification 3.2 Apply information accessed in manual 3.3 Store manual	• Lecture/ Demonstration • Dual training • Distance Learning	• Written test • Direct observation • Project method • Interview

4. Perform Shop Maintenance	4.1 Inspect/clean tools and work area 4.2 Store/arrange tools and shop equipment 4.3 Dispose wastes/used lubricants 4.4 Report damaged tools/equipment	• Lecture/ Demonstration • Dual training • Self paced (modular) • Simulation • Interactive lecture	• Written test • Direct observation • Demonstration • Interview

CORE COMPETENCIES

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Perform press machine setting	1.1 Set up die on the press machine 1.2 Conduct trial run 1.3 Replace worn/damaged tooling or dies	• Lecture • Demonstration • Dualized training • Distance	• Direct Observation • Written test • Demonstration • Portfolio
2. Perform mechanical shearing operations	2.1 Secure job order, part drawings and instructions 2.2 Conduct machine settings and set-up checks 2.3 Select steel feed stock materials 2.4 Perform shearing press operations 2.5 Monitor machine operation	• Demonstration Discussion • Dualized training • Distance learning	• Direct Observation • Written or oral examination • Demonstration • Portfolio • Third party report
3. Perform mechanical press forming operations	3.1 Secure job order, part drawings and instructions 3.2 Conduct machine settings and set-up checks 3.3 Inspect delivered steel feed stock materials 3.4 Perform press operations 3.5 Monitor machine operation	• Lecture • Demonstration Discussion • Dualized training • Distance learning	• Direct Observation • Written or oral examination • Demonstration • Portfolio

3.2 TRAINING DELIVERY

The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of Competency-Based TVET.

- The training is based on curriculum developed from the competency standards;
- Learning is modular in its structure;
- Training delivery is individualized and self-paced;
- Training is based on work that must be performed;
- Training materials are directly related to the competency standards and curriculum modules;
- Assessment is based in the collection of evidence of the performance of work to the industry required standard;
- Training is based both on and off-the –job component;
- Allows for the recognition of prior learning (RPL) or current competencies;
- Training allows for multiple entry and exit ; and
- Approved training programs are nationally accredited.

The competency-based TVET system recognizes various types of delivery modes, both on and off-the–job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs:

- The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in school and in-industry training of fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations

- Modular / self-paced learning is a competency- based training modality wherein the trainee is allowed to progress at his own pace. The trainer facilitates the training delivery

- Peer teaching / mentoring is training modality wherein fast learners are given the opportunity to assist the slow learners.

- Supervised industry training or on-the-hob training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies prescribed in the training regulations.

- Distance learning is formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, or audio, video or computer technologies.

3.3 TRAINEE ENTRY REQUIREMENTS

This section specifies the qualifications of trainees and educational experience. Other requirements like health and physical requirements are also stated. Passing entry written examinations may also be indicated if necessary.

- Must be high school graduate;
- Ability to communicate both orally and in writing; and
- Physically and mentally fit

3.4 LIST OF TOOLS, EQUIPMENT AND MATERIALS METAL STAMPING NC II

Recommended list of tools, equipment and materials for the training of 25 trainees for Metal Stamping NC II

TOOLS					
QTY		**QTY**		**QTY**	
2 sets	• Box wrench	2 sets	• Open end wrench 4 mm to 20 mm	2 sets	• Allen wrench 4 to 10 mm
2 sets	• Adjustable wrench	2 set	• Flat screw driver length 140 & 160	2 sets	• Philips screw driver
2 sets	• Vice grip length175 mm		•		•
Measuring Tools:					
25 pcs	• Steel rule	15 pcs.	• Vernier caliper - Inside - outside	15 pcs.	• Micrometer - inside - outside
10 pcs.	• Feeler gauges		•		•

Safety Device:					
1 box	• First –Aid kit	25 pcs	• Safety goggle	25 pcs	• Safety shield/mask
4 cyl	• Fire extinguisher	25 pcs	• Safety shoes	25 pcs	• Gloves

EQUIPMENT			DIES		
QTY					
1 unit	• Mechanical press machine with accessories		• Blanking		• Bending
1 unit	• Compressor with accessories		• Cut-off		• Compound
1 unit	• Hoists		• Piercing		• Progressive
1 unit	• Jacks		• Trimming		• Forming/drawing
MATERIALS					
	• Steel sheets		• Lubricating oil		
Housekeeping materials:					
20 pcs	▪ Brooms	10 k	▪ Clean rags	5 pcs	▪ Dustpan
10 pcs	▪ Scrapers	10 pcs	▪ Mops	2 pcs.	▪ Trash can
10 gal	▪ Kerosene oil	2 bars	▪ Soap		
Training Materials:					
	▪ Reference books		▪ Catalogs ▪ Brochures / LE s		▪ CD s / Video tape

3.5 TRAINING FACILITIES
METAL STAMPING NC II

The workshop must be of concrete structure. Based on class size of 25 students/trainees the space requirements for the teaching/learning and circulation areas are as follows:

SPACE REQUIREMENT	SIZE IN METERS	AREA IN SQ. METERS	TOTAL AREA IN SQ. METERS
• Building (permanent)	10 M X 30 M		300 Sq. M
▪ Trainee working space	2 M X 2 M	4 Sq.M/trainee	100 sq. M.
▪ Lecture Room	8 M X 10 M	80 Sq. M.	80 sq. M
▪ Learning Resource Center	4 M X 8 M.	32 Sq. M	32 Sq. M
▪ Facilities/ Equipment/ Circulation Area**			154 Sq. M.

***** Area requirement is equivalent to 30% of the total teaching/learning areas***

3.6 TRAINER'S QUALIFICATIONS FOR AUTOMOTIVE MANUFACTURING SECTOR

METAL STAMPING NC II TRAINER QUALIFICATION (TQ I)

- Must be a holder of METAL STAMPING NC II
- Must have undergone training on Training Methodology II (TM II) [1]
- Must be computer literate
- Must be physically and mentally fit
- Must have at least 2 years job/industry experience[2]
- Must be a civil-service eligible or holder of appropriate professional license issued by the Professional Regulatory Commission (for government positions

[1] This shall be changed to ":Must be a holder of Trainer Qualification Level II (TQII) or equivalent" upon promulgation by the TESDA Board of the TQ/AQ training regulations

[2] Optional. Only when required by the hiring institution

Reference: TESDA Board Resolution No. 2004 03

3.7 INSTITUTIONAL ASSESSMENT

Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.

SECTION 4 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS

4.1 To attain the National Qualification of **Metal Stamping NC II**, the candidate must demonstrate competence in all the units of competency listed in Section 1. Successful candidates shall be awarded a National Certificate signed by the TESDA Director General.

4.2 Individual aspiring to be awarded the qualification of Metal Stamping NC II must acquire Certificates of Competency (COC) in all the following core units of the Qualification. Candidates may apply for assessment in any accredited assessment center.

4.2.1 Perform Press Machine Setting
4.2.2 Perform Mechanical Shearing Operation
4.2.3 Perform Mechanical Press Forming Operation

4.3 Upon accumulation and submission of all COCs acquired for the relevant units of competency comprising a qualification, an individual shall be issued the corresponding National Certificate.

4.4 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.

4.5 The following are qualified to apply for assessment and certification:

4.5.1 Graduates of formal, non-formal and informal including enterprise-based training programs.

4.5.2 Experienced workers (wage employed or self employed)

4.6 The guidelines on assessment and certification are discussed in detail in the "*Procedures Manual on Assessment and Certification"* and *"Guidelines on the Implementation of the Philippine TVET Qualification and Certification System* (PTQCS)".

COMPETENCY MAP- AUTOMOTIVE SECTOR **ANNEX A**

MANUFACTURING SUB-SECTOR

(Parts Manufacturing)

CORE COMPETENCIES	Develop and Manufacture Wood Pattern	Develop and Manufacture Polymer Pattern	Develop and Manufacture Assembled Plated Pattern	Develop and Manufacture Production Pattern	Perform General Woodworking Machine Operations	Use and Maintain Measuring Instrument	Machine Parts	Perform Precision Assembly
	Prepare & Mix Sand for Metal Molding	Produce Molds by Hand	Produce Cores by Hand	Operate Molding Machine	Operate Core-Making Machine	Pour Molten Metal to Molds	Prepare Sand Mixture for Heavy Casting	Produce Blow Molded Products
	Operate Melting Furnaces (non-electric)	Operate Cupola Melting Furnace	Operate Electric Induction Melting Furnace	Fettle & Trim Metal Castings/Forgings	Perform Refractory Installation & Repair	Perform Hand Molding to Produce Heavy Casting	Pour Molten Metal to Heavy Castings	Produce Injection Molded Products
	Melt Aluminum-Silicon Alloys for Safety Tested Castings	Melt Metals Using Coreless Induction Furnace	Melt Automotive Gray Iron Castings in Cupola	Manufacture and develop corebox for Shell Core Box	Develop and Manufacture Gear, Conveyor Screw and	Develop Gravity Die Casting Mold	Perform Press Machine Setting	Perform Mechanical Shearing Operation
	Use Comparison and Basic Measuring Devices	Measure Components Using Coordinate Measuring Machines	Use Graphical Techniques and Perform Simple Statistical Computations	Apply Quality Systems	Conduct Product and/or Process Capability Studies	Maintain/Supervise the Application of Quality Procedures	Perform Mechanical Press Forming Operation	
	Perform Hand Forging	Perform Hammer Forging	Perform Basic Incidental Heat/Quenching, Tempering and Annealing	Hand Forge Complex Shapes	Hammer Forge Complex Shapes	Perform Drop and Upset Forging	Select Heat Treatment Process	Perform Heat Treatment Process
	Perform Engineering Measurement	Perform Precision Mechanical Measurement	Calibrate Measuring Equipment	Select and Control Inspection Processes and Procedures	Perform Inspection	Perform Basic Statistical Quality Control	Use Improvement Processes in Team Activities	
	Prepare Molds for Composites Production	Prepare Materials for Formulae	Assemble Materials and Equipment for Production	Operate injection Molding Equipment	Operate Blow Molding Equipment	Monitor Process Operations	Finish Products and Components	
COMMON COMPETENCIES	Read & Interpret Engineering Drawings	Perform Mensuration and Calculation	Read, Interpret and Apply Specifications and Manuals	Perform Shop Maintenance				
BASIC COMPETENCIES	Receive and respond workplace communication	Work with Other	Demonstrate work values	Practice basic housekeeping procedures	Lead in workplace communication	Develop and practice negotiation skills	Use relevant technologies	Solve workplace problems related to work activities
	Participate in workplace communication	Work in team environment	Practice career professionalism	Practice occupational health and safety procedures	Lead small Team	Use mathematical concepts and techniques	Develop team and individual	Apply problem solving techniques in the workplace
	Plan and organize work	Utilize specialist communication skills						

Legend:

METAL STAMPING NC II

Definition of Terms

1.	Press	A machine by which pressure is applied to a workpiece to cut, pierce, bend or shape it
2.	Die	A tool used to impart shapes to or to form impressions on sheet metal
3.	Blanking	A press operation wherein metal sheets are cut into shapes by striking with a punch
4.	Bending	A press operation that involves forming a metal part into a curved or angular shape, or the stretching or flanging of it along a curved path
5.	Drawing	A press operation that forces plastic deformation of metal in a die to form recessed parts or cuplike shapes
6.	Drawing die	A die that forms sheet metal into cuplike, wrinkle-free shapes
7.	Feed stock	The raw material furnished to a press machine to form or shape the metal
8.	Trimming	Removing excess materials from drawn or blanked part
9.	Punching	A piece removed from a sheet metal or other material by a punch press
10.	Ram	A plunger, weight or other guided structure for exerting pressure by impact
11	Shearing	**Shearing** is a metalworking process which cuts stock without the formation of chips or the use of burning or melting. Strictly speaking, if the cutting blades are straight the process is called shearing; if the cutting blades are curved then they are shearing-type operations.[1] The most commonly sheared materials are in the form of sheet metal or plates, however rods can also be sheared. Shearing-type operations include: blanking, piercing, roll slitting, and trimming.
12	Piercing	**Piercing** is a shearing process where a punch and die are used to create a hole in sheet metal or a plate. The process and machinery are usually the same as that used in blanking, except that the piece being punched out is scrap in the piercing process.[1] There are many specialized types of piercing: lancing, perforating, notching, nibbling, shaving, cutoff, and dinking.

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