SKILLS PROGRAMME TITLE	**CODED WELDING**				
NQF LEVEL	**04**	**CREDITS**	**96**	**COURSE DURATION**	**6 MONTHS**
SKILLS PRORAMME ID	**SP-210402**				
CERTIFICATION BODY	**QCTO**				

SKILLS PROGRAMME DETAILS

Skills Programme Title	Coded Welding
Sub Title	Welder
NQF Level	4
Credits	96
Duration	6 Months
Quality Assuring Body	Quality Council for Trades and Occupations (QCTO)
Rationale	The need for this skills programme is to develop coded welders so that South Africa has a pool of these skills to avoid importing them from overseas. The programme is expected to also develop unemployed youth in the country so that they can access opportunities such as shutdown maintenance of plants or become coded welding entrepreneurs and contribute to improvement of livelihoods and economic development. Intended to expose welders to on-going welding practices in between formal or entrepreneurship opportunities. In addition, to further the shaping of a structured integrated coded welding programme to be used nationally. • The learner will be able to apply generic health and safety principles to produce weld specimens or components using hand and power tools. Produce fillet, pipe and plate welds using SMAW/MMA, GMAW/MIG/MAG and GTAW/TIG welding process processes
Related registered qualification/s	• Occupational Certificate: Welder, NQF Level 4, Credits 373 • FETC: Welding Application and Practice: Chemical Welding NQF 4, Credit 158 • NC: Welding Application and Practice: Chemical Welding NQF 3, Credit 151 • NC: Welding Application and Practice: Chemical Welding NQF 2, Credit 158

Purpose	The purpose of this skills programme it to prepare a learner to operate as a Coded Welder who is able to demonstrate his/her ability to meet pre-defined criteria by producing welded test coupon/s in accordance with the parameters specified in a qualified welding procedure specification (WPS). The learner will be able to produce welds of high quality within a short space of time and the produced welds must meet the required visual, non-destructive and if applicable the destructive evaluation acceptance criteria as defined by the relevant welding code. Apply generic and process specific health and safety principles and practices to produce positional welds using the following processes and materials • SMAW/MMA Process –material to be carbon steel and carbon steel consumables • GMAW/MIGMAG Process On carbon steel, using solid wire consumables only (ER70-S-6) • GTAW/TIG Process on carbon steel material, using, carbon steel and stainless-steel consumables	
Content	**<u>Knowledge component</u>** Topic 1 Introduction to the Welding Trade Topic 2 General health, safety and environmental protection concepts Topic 3 Welding codes, standards and parameters Topic 4 SMAW/MMA Process Topic 5 GMAW/MIG/MAG Process Topic 6 Safety use, care and store engineering hand tools. Topic 7	**<u>Application component</u>** Topic 1 Select use, care and store engineering hand tools. Topic 2 Select use, care and store engineering power tools. Topic 3 Select use, care and store engineering measuring equipment Topic 4 Produce fillet welds on carbon steel material using the Shielded Metal Arc Welding process Topic 5 Produce fillet welds on carbon steel material using the Gas Tungsten Arc Welding process

	Safety use, care and store engineering power tools. Topic 8 Safety use, care and store engineering measuring equipment.	Topic 6 Produce plate butt welds on carbon steel material using the Shielded Metal Arc Welding process Topic 7Produce plate butt welds on carbon steel material using the Gas Tungsten Arc Welding process Topic 8 Produce plate butt welds on carbon steel material using the Gas Tungsten Arc Welding process and Shielded Arc Welding process combination 8 Topic 9 Produce pipe welds on schedule 40, ½ inch Ø, 2 inch Ø and 6 inch Ø carbon steel material using the Gas Tungsten Arc Welding process, with carbon steel and stainless-steel welding consumables in the 2G, 5G and 6G positions Topic 10 Produce pipe welds on Schedule 40, 6 inch Ø carbon steel material using the Gas Tungsten Arc Welding (GTAW / TIG) and Shielded Metal Arc (SMAW/MMA) Welding processes, with carbon steel and stainless-steel welding consumables
Minimum entry requirements	1-year experience in welding	

Exit Level Outcomes	• Apply generic health and safety principles to produce weld specimens or components using hand and power tools • Produce fillet welds using SMAW / MMA and processes • Produce plate welds using SMAW/MMA and GTAW/TIG welding processes • Produce pipe welds using the GTAW / TIG and SMAW / MMA welding processes
Assessment	**<u>Continuous Assessment</u>** Written & Practical Test • Explanation of the workshop safe work procedures, precautions and Personal Protective Equipment required for SMAW, GTAW, GMAW welding processes • Demonstration of an understanding of the acceptable standard(s) when selecting, using and caring for hand and power tools • Description of the SMAW, GTAW, GMAW welding processes • Explanation of the potential causes of weld defects when welding SMAW, GTAW, GMAW welding processes • Identification and correlation of welding symbols to a type of joint • Explanation of the classification and application of welding consumables for SMAW, GTAW, GMAW welding processes **Supervised Assessment** Practical tasks The practical Topics of this skills program shall require the learner to produce positional fillet, butt and pipe weld specimens using a variety of arc welding processes including, Shielded Metal Arc Welding (SMAW / MMA), Gas Metal Arc Welding (GMAW / MIG-MAG) and Gas Tungsten Arc Welding (GTAW / TIG).
Recognition of Prior Learning (RPL)	• Learners will gain access to the skills programme through RPL for Access as provided for in the QCTO RPL Policy. RPL for access is conducted by an accredited institution, skills development provider or workplace accredited to offer that specific skills programme. • Learners who have already acquired competencies of modules of a skills programme will be exempted from

	modules through RPL. Such learners will be awarded credits towards the skills programme. • Learners who complete this skills programme will accumulate credits towards the relevant full or part qualification. The Credit Accumulation and Transfer (CAT) Policy shall apply to these learners
Work Opportunities/further learning	Upon completion of the Coded Welder qualification, the learner shall access a Non-destructive X Ray Testing (X Radiographic Testing) that will enable the learner to be employed as the following tradesmen: • Welder Double Coded / "A" Class Welder • Welder Single Coded / "A" Class Welder • Welder Structural / "B" Class Welder Currently the petro-chemical environment requires the services of coded welders for among others their seasonal shutdown activities
Skills Development Provider Accreditation Requirements	***Human resource requirements*** • Qualified welder with 5-year operational welding experience, OR • Completed the Welding Inspector, International Welding Practitioner or International Welding Specialist qualification, and • Completed a qualification in occupational related training ***Physical resource requirements*** • Shielded Metal Arc Welding equipment • Welding Consumables • Welding Material • Welder equipment and welding cubicle per learner. ***Legal Requirements:*** • Compliance with occupational safety, health and environmental protection legislation. • Safety Requirement • General health, safety and environmental protection concepts • Welding specific health, safety and environmental protection concepts