



Tertiary and Vocational Education Commission

**National Competency Standards and Curriculum
For
Welding Technician (Manual Metal Arc)
NVQ Level 2**

Course synopsis

This course is designed to introduce students to the basic skills in Manual Metal Arc welding so they can undertake work in the field under supervision. They will develop the competencies required to weld steel plates in flat, horizontal and vertical positions while ensuring the safety of self, others, equipment and environment

Course Title	Course Duration
Welding Technician – NVQ Level 2	3 months
<p>Job outlook, objectives of the course and career paths available following completion of the course</p> <p>A welding technician is a person who cut, shape, join and repair metal components of iron and steel structure applying enough heat to melt the pieces so that they can be fused into one bond. Because the bond is so strong, welding is used in many industrial applications. Depending on the application, welders may use different types of welding processes, such as arc welding or oxy-fuel welding. Welders may work in a variety of industries, including construction and manufacturing.</p> <p>This course covers the competencies of selecting and preparing material for welding, welding steel plates in flat positions while ensuring the safety of self, others, equipment and environment.</p> <p>Total duration of the course is 3 months. During this training period, students must maintain records and prepare a portfolio of the work they do, and should be able to explain how they dealt with problems they came across.</p> <p>Welding technician – NVQ Level 2 is an entry level qualification for the manufacturing and engineering field. Career progressions for ‘Welding Technician NVQ Level 2’ are ‘Welding Technician NVQ Level 3’, ‘Welding Technician NVQ Level 4’ and ‘National Diploma Welding Technology NVQ Level 5 and 6’.</p>	

Competence-based modules to be covered:**1. Arrange safe work environment**

This module covers the competencies required to maintain safe work environment in welding work shop to minimize the risk and accidents

2. Prepare material for welding

This module covers the competencies required to select and prepare materials for welding according to the drawing/sketch, arrange oxy acetylene / oxy fuel equipment for cutting and cut steel plates by oxy acetylene/ oxy fuel flame while ensuring safe work practices in the use of material and equipment at all times.

3. Weld steel plates by manual metal arc welding In flat position (1G and 1F)

This unit covers the competencies required for setting the welding equipment and to perform manual arc welding of steel plates in flat positions (1G and 1F), while ensuring safe work practices in the use of material and equipment at all times.

4. Career Skills including English Communication

This module is compulsory in all NVQ Level 2 courses. It develops oral communication skills in English and helps students to prioritize their work and develop routines that contribute to efficiency.

Module Title	Course Duration
1. Arrange safe working environment	
<p>Objectives of the module;</p> <p>This module covers the competencies required to maintain safe work environment in welding work shop to minimize the risk and accidents</p>	
<p>Competencies to be covered:</p> <ol style="list-style-type: none"> 1. Use personal safety gear during work with welding and other workshop activities. 2. Arrange the place of work to minimize the health risks. 3. Arrange the place of work in order to make it possible to work in the most ergonomic way 4. Prevent fire and explosion at the place of work 5. Prevent electrical hazard at the place of work 6. Prevent radiation to reach fellow workers 7. Arrange the fume exhaust system 8. Handle heavy work pieces safely 9. Use fire extinguisher to extinguish fire 10. Provide basic first aid 	
Recommended teaching methods :	Demonstration, guided practice, real work situations

Module Title	Course Duration
2. Prepare material for welding	
<p>Objectives of the module;</p> <p>This module covers the competencies required to select and prepare materials for welding, arrange oxy acetylene / oxy fuel equipment for cutting and cut steel plates by oxy acetylene/ oxy fuel flame while ensuring safe work practices in the use of material and equipment at all times.</p>	
<p>Competencies to be covered:</p> <ol style="list-style-type: none"> 1. Read and interpret drawing/ sketch 2. Select materials and consumables according to the job/ product 3. Prepare work pieces for welding by marking out according to the drawing/ sketch 4. Cut work piece with hand operated shears 5. Drill with pillar drill and hand drill machine 6. Grind with pedestal and angle grinding machine 7. Cut material with power saw / abrasive wheel 8. Prepare joint surfaces for welding 9. Secure parts for welding using clamps 10. Arrange gas welding equipment for plate cutting 11. Cut steel plates by oxy- acetylene flame, manually 	
Recommended teaching methods :	Demonstration, guided practice, real work situations

Module Title	Course Duration
3. Weld steel plates by manual metal arc welding In flat position (1G and 1F)	
<p>Objectives of the module;</p> <p>This unit covers the competencies required for setting the welding equipment and to perform manual arc welding of steel plates in flat positions (1G and 1F), while ensuring safe work practices in the use of material and equipment at all times.</p>	
<p>Competencies to be covered:</p> <ol style="list-style-type: none"> 1. Cut material to required sizes 2. Prepare weld joints 3. Arrange arc welding equipment 4. Tack weld the metal pieces for welding considering heating and cooling effects 5. Weld steel plates, in flat position by manual metal arc welding 	
Recommended teaching methods :	Demonstration, guided practice, real work situations

Module Title	Course Duration
5. Career Skills including English Communication	At least 60 hours in 3 month course
<p>Objectives of the module This module is compulsory in all NVQ Level 2 courses. It develops oral communication skills in English and helps students to prioritize their work and develop routines that contribute to efficiency.</p> <p>Competencies to be covered</p> <p>a Understand and use simple expressions to communication This subject provides the necessary communication skills so that students can introduce themselves and interact with others, and can respond to simple questions and follow simple instructions, describe people, places, and tools.</p> <p>b Read and write effectively This subject provides the necessary skills to find and understand the information given in a text, to understand notices, instructions and information, to take down short messages and write simple descriptions.</p> <p>c. Use English correctly This subject is not taught separately but is included in the development of the productive and receptive skills above, since awareness of the structure of the language is necessary for these. The development of appropriate vocabulary is also targeted to deploy the above skills</p> <p>d. Develop the capacity to think and plan productively This subject develops cognitive abilities and skills with regard to effective work, with strengthening of thinking skills, recognition of systems, making deductions etc</p> <p>e. Develop effective working capacity This subject develops the capacity to work effectively individually and in collaboration with others through building the sense of individual responsibility, and accountability within a working group</p>	