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GOVERNMENT NOTICE.

DEPARTMENT OF LABOUR.

No. R.828.] [29th May, 1970

APPRENTICESHIP ACT, 1944, AS AMENDED

**NATIONAL APPRENTICESHIP COMMITTEE FOR
THE METAL INDUSTRY**

**PROPOSED WITHDRAWAL AND PRESCRIPTION
OF CONDITIONS OF APPRENTICESHIP**

I, MARAIS VILJOEN, Minister of Labour, acting in terms of section 16 of the Apprenticeship Act, 1944, as amended, propose to—

- (a) withdraw Government Notice R.2061 of 8 November 1968 (as applied by Government Notice R.2367 of 27 December 1968) and Government Notice R.265 of 20 February 1970;
- (b) designate for the Metal Industry—
 - (i) the trades numbered 1 to 12 and 14 to 41 below, as trades in respect of which the provisions of the Act shall apply in the whole of the area of jurisdiction of the National Apprenticeship Committee for the Metal Industry:

TRADES

1. Architectural Metalworking (2)
2. Armature Winding (1)
3. Blacksmithing (12)
4. Boatbuilding and Shipwrighting (Wood) (3)
5. Bricklaying (Refractory) (19)
6. Carpentry (35)

GOEWERMENSKENNISGEWING.

DEPARTEMENT VAN ARBEID.

No. R.828.] [29 Mei 1970.

WET OP VAKLEERLINGE, 1944, SOOS GEWYSIG

**NASIONALE VAKLEERLINGSKAPKOMITEE VIR
DIE METAALNYWERHEID**

**VOORGENOME INTREKKING EN
VOORSKRYWING VAN LEERVOORWAARDES**

Ek, MARAIS VILJOEN, Minister van Arbeid, handelende kragtens artikel 16 van die Wet op Vakleerlinge, 1944, soos gewysig, is voornemens om—

- (a) Goewermentskennisgewing R.2061 van 8 November 1968 (soos toegepas by Goewermentskennisgewing R.2367 van 27 Desember 1968) en Goewermentskennisgewing R.265 van 20 Februarie 1970 in te trek;
- (b) vir die metaalnywerheid—
 - (i) die ambagte genummer 1 tot 9 en 11 tot 41 hieronder aan te wys as ambagte ten opsigte waarvan die bepalings van die Wet van toepassing is in die hele regsgebied van die Nasionale Vakleerlingskapkomitee vir die Metaalnywerheid:

AMBAGTE

1. Ankerwikkeling (2)
2. Argitektoniese metaalwerk (1)
3. Boot- en skeepsbou (hout) (4)
4. Dieselpaswerk (9)
5. Draaiwerk (met inbegrip van masjienwerk) (38)
6. Elektriese (14)

7. Coppersmithing (17)
8. Die Making (31)
9. Diesel Fitting (4)
10. Diesinking and Engraving (30)
11. Domestic Appliances Mechanic (14)
12. Domestic Radio Serviceman (13)
13. Electrical Wireman (10)
14. Electrician (6)
15. Electrician (Engineering) (7)
16. Electronics Mechanician (8)
17. Electroplating (9)
18. Fitting and Turning (23)
19. Fitting (including Machining) (24)
20. Instrument Mechanician: Industrial Instrumentation and Process Control (16)
21. Lift Mechanic (15)
22. Millwright (Electro-Mechanician) (20)
23. Motor Mechanic (22)
24. Moulding (39)
25. Pattern Making (21)
26. Plating (26)
27. Plating/Boilermaking (27)
28. Plumbing (18)
29. Radio Communications Serviceman (28)
30. Refrigeration Mechanic (Commercial) (36)
31. Rigging (33)
32. Roll Tool and Template Making (41)
33. Roll Turning (40)
34. Scale Fitting (29)
35. Sheetmetal Working (25)
36. Telephone Communications Electrician (34)
37. Tool and Jig Making (11)
38. Turning (including Machining) (5)
39. Vehicle Body Building (Composite) (38)
40. Vehicle Body Building (Metal) (37)
41. Welding (32);

(ii) the trade *Electrical Wireman* as a trade in respect of which the provisions of the Act shall apply in the Province of Natal;

(c) prescribe the conditions set out hereunder as conditions of apprenticeship in respect of the trades designated in paragraph (b) in the areas therein mentioned; and

(d) determine that the provisions of clauses 3 to 7 of the conditions of apprenticeship set out hereunder shall, from the date of prescription thereof, also apply to apprentices who are employed in any trade which is or was a designated trade in the industry and area for which the said Committee was established.

CONDITIONS

1. QUALIFICATIONS FOR COMMENCING APPRENTICESHIP

The minimum age and educational qualifications for commencing apprenticeship shall be 16 years and Standard VII or a statement of attainment issued by or on behalf of the school attended by the prospective apprentice reflecting a pass at Standard VII level in the subjects Afrikaans, English, Arithmetic or General Mathematics or Physical Science and at least one other subject.

2. PERIOD OF APPRENTICESHIP

Subject to the provisions of clause 6 (c) (ii) the period of apprenticeship shall be 5 years in the designated trade *Instrument Mechanician: Industrial Instrumentation and Process Control* and in the designated trade *Millwright (Electro-Mechanician)* and 4 years in all other designated trades.

7. Elektriese (ingenieurswese) (15)
8. Elektronika-meganikus (16)
9. Elektroplaatwerk (17)
10. Elektrotegniese draadwerker (13)
11. Gereedskap- en setmaatvervaardiging (37)
12. Grofsmidswerk (3)
13. Huisradiotrisiën (12)
14. Huistoestelwerktuigkundige (11)
15. Hyserwerktuigkundige (21)
16. Instrumentwerktuigkundige: Industriële instrumentasie en prosesbeheer (20)
17. Kopersmidswerk (7)
18. Loodgieterswerk (28)
19. Messelwerk (vuurvaste stene) (5)
20. Meulmaker (elektro-meganikus) (22)
21. Modelvervaardiging (25)
22. Motorwerktuigkundige (23)
23. Pas- en draaiwerk (18)
24. Paswerk (met inbegrip van masjien werk) (19)
25. Plaatmetaalwerk (35)
26. Plaatwerk (26)
27. Plaatwerk/Ketelmakery (27)
28. Radiokommunikasiediensman (29)
29. Skaalpaswerk (34)
30. Stempelsny- en -graveerwerk (10)
31. Stempelvervaardiging (8)
32. Sweiswerk (41)
33. Takelwerk (31)
34. Telefoonkommunikasie-elektriese (36)
35. Timmerwerk (6)
36. Verkoelingswerktuigkundige (handel) (30)
37. Voertuigbakbou (metaal) (40)
38. Voertuigbakbou (saamgestel) (39)
39. Vormgieterwerk (24)
40. Walsdraaiwerk (33)
41. Walsgereedskap en -patrone maak (32);

(ii) die ambag *Elektrotegniese draadwerker* aan te wys as 'n ambag ten opsigte waarvan die bepalings van die Wet van toepassing is in die provinsie Natal;

(c) die leervoordes hieronder gemeld, as leervoordes voor te skryf ten opsigte van die ambagte aangewys in paragraaf (b) in die gebiede daarin vermeld; en

(d) te bepaal dat die bepalings van klousules 3 tot 7 van die leervoordes hieronder vermeld, vanaf die datum van voorskrywing daarvan, ook van toepassing is op vakleerlinge wat in diens is in 'n ambag wat 'n aangewese ambag is of was in die nywerheid en gebied waarvoor gemelde Komitee ingestel is.

VOORWAARDES

1. KWALIFIKASIES OM MET VAKLEERLINGSKAP TE BEGIN

Die minimum leeftyd en opvoedkundige kwalifikasies om met vakleerlingskap te begin, is 16 jaar en Standaard VII of 'n verklaring van prestasie, uitgereik deur of namens die skool wat deur die voornemende vakleerling besoek is, waarin gemeld word dat hy op die Standaard VII-peil geslaag het in die vakke Afrikaans, Engels, Rekenkunde of Algemene Wiskunde of Natuurkunde en minstens een ander vak.

2. LEERTYD

Behoudens die bepalings van klousule 6 (c) (ii), is die leertyd 5 jaar in die aangewese ambag *Instrumentwerktuigkundige: Industriële instrumentasie en prosesbeheer* en in die aangewese ambag *Meulmaker (elektro-meganikus)*, en 4 jaar in alle ander aangewese ambagte.

3. WAGES

(a) An employer shall remunerate an apprentice at not less than the rates specified hereunder:

(1) *An apprentice whose contract was registered before the date on which these conditions become effective:*

(i) *In four-year trades*

	Per week
	R
First year . .	17.55
Second year . .	21.60
Third year . .	26.10
Fourth year . .	30.60

(ii) *In five-year trades*

First year . .	17.55
Second year . .	21.60
Third year . .	26.10
Fourth year . .	30.60
Fifth year . .	Not less than the lowest wage prescribed in the Main Agreement of the National Industrial Council for the Iron, Steel, Engineering and Metallurgical Industry for Rate A work.

(2) *An apprentice whose contract is registered on or after the date referred to in (1):*

(i) *In four-year trades*

	Per week
	R
First year . .	17.55
Second year . .	21.60
Third year . .	26.10
Fourth year . .	30.60:

Provided that an apprentice, other than an apprentice indentured in the trade *Electroplating* or *Rigging*, who fails to pass a trade test undertaken before the end of the fourth year of his period of apprenticeship shall, with effect from the day following upon the date of termination of such fourth year, be paid not less than the lowest wage prescribed in the Main Agreement of the National Industrial Council for the Iron, Steel, Engineering and Metallurgical Industry for Rate A work, irrespective of whether the said Agreement is binding in respect of the area or trade in which the apprentice is employed.

(ii) *In five-year trades*

	Per week
	R
First year . .	17.55
Second year . .	21.60
Third year . .	26.10
Fourth year . .	30.60
Fifth year . .	Not less than the lowest wage prescribed in the Main Agreement of the National Industrial Council for the Iron, Steel, Engineering and Metallurgical Industry for Rate A work.

(b) If the agreement referred to in subclause (a) lapses, an apprentice serving more than 4 years of apprenticeship shall in his fifth year be paid not less than the lowest wage prescribed in the lapsed agreement for Rate A work, irrespective of whether the lapsed agreement applied to the area or trade in which the apprentice is employed, until such an agreement again comes into force.

3. LONE

(a) 'n Werkgewer moet 'n vakleerling besoldig teen minstens die skaal hieronder gespesifiseer:

(1) *'n Vakleerling wie se kontrak geregistreer is vóór die datum waarop hierdie voorwaardes van krag word:*

(i) *In vierjaarambagte*

	Per week
	R
Eerste jaar . .	17.55
Tweede jaar . .	21.60
Derde jaar . .	26.10
Vierde jaar . .	30.60

(ii) *In vyfjaarambagte*

Eerste jaar . .	17.55
Tweede jaar . .	21.60
Derde jaar . .	26.10
Vierde jaar . .	30.60
Vyfde jaar . .	Minstens die laagste loon wat ingevolge die Hoofdooreenkoms van die Nasionale Nywerheidsraad vir die Yster-, Staal-, Ingenieurs- en Metaalurgiese Nywerheid voorgeskryf is vir Tarief A-werk.

(2) *'n Vakleerling wie se kontrak geregistreer is op of na die datum vermeld in (1):*

(i) *In vierjaarambagte*

	Per week
	R
Eerste jaar . .	17.55
Tweede jaar . .	21.60
Derde jaar . .	26.10
Vierde jaar . .	30.60:

Met dien verstande dat 'n vakleerling, uitgesonderd 'n vakleerling ingeboek in die ambag *Elektroplaatwerk* of *Takelwerk*, wat nie slaag in 'n ambagstoets wat voor die einde van die vierde jaar van sy leertyd ondergaan is nie, met ingang van die dag ná die datum waarop sodanige vierde jaar verstryk, minstens die laagste loon betaal moet word wat in die Hoofdooreenkoms van die Nasionale Nywerheidsraad vir die Yster-, Staal-, Ingenieurs- en Metaalurgiese Nywerheid voorgeskryf is vir Tarief A-werk, ongeag of genoemde Ooreenkoms bindend is vir die gebied of ambag waarin die vakleerling in diens is.

(ii) *In vyfjaarambagte*

	Per week
	R
Eerste jaar . .	17.55
Tweede jaar . .	21.60
Derde jaar . .	26.10
Vierde jaar . .	30.60
Vyfde jaar . .	Minstens die laagste loon wat ingevolge die Hoofdooreenkoms van die Nasionale Nywerheidsraad vir die Yster-, Staal-, Ingenieurs- en Metaalurgiese Nywerheid voorgeskryf is vir Tarief A-werk.

(b) Indien die Ooreenkoms verstryk wat in subklousule (a) vermeld word, moet 'n vakleerling wat 'n leertyd van meer as 4 jaar uitdien, in sy vyfde jaar minstens die laagste loon betaal word wat in die verstreke Ooreenkoms voorgeskryf is vir Tarief A-werk, ongeag of genoemde Ooreenkoms bindend was vir die gebied of ambag waarin die vakleerling in diens is, tot tyd en wyl so 'n ooreenkoms weer van krag word.

(c) If an employer and a prospective major apprentice agree, before entering into a contract of apprenticeship, that wages shall be paid at rates higher than those prescribed in subclause (a), such higher rates of wages shall be recorded in the contract and shall be paid to the apprentice.

(d) (i) An employer shall supplement the wage prescribed in this clause in respect of every apprentice, other than an apprentice in his fifth year, who is in possession of or attains any of the educational qualifications scheduled hereunder or equivalents, by an amount of not less than that indicated in the schedule:

SCHEDULE

Educational Qualifications attained prior to or during Apprenticeship	Per week
GROUP 1	R
(i) National Junior Certificate with workshop practice as one subject of success (ii) National Technical Certificate, Part I, with the relevant trade theory as one subject of success	1.35
GROUP 2	
(i) National Technical Certificate, Part II (ii) Standard 10 without mathematics as one subject of success (non-university entrance)	4.50
GROUP 3	
(i) National Technical Certificate, Part III (ii) Standard 10 with mathematics as one subject of success (non-university entrance) (iii) Part A of the National Diploma for Technicians	5.85
GROUP 4	
(i) National Technical Certificate, Part IV (ii) Matriculation certificate (university entrance) (iii) Part B of the National Diploma for Technicians	6.75
GROUP 5	
(i) National Technical Certificate, Part V (ii) Part C of the National Diploma for Technicians (iii) Part B.Sc. (pass in three subjects)	8.10
GROUP 6	
(i) National Technical Diploma (ii) Part D of the National Diploma for Technicians	11.25

(ii) The amounts prescribed in terms of paragraph (i) shall not be cumulative but shall be payable in respect of only one, i.e. the highest certificate or diploma attained. Any amount to which an apprentice is entitled in terms of the said paragraph shall, where the relevant certificate or diploma is attained during his apprenticeship, be payable as from the date of issue thereof.

4. TECHNICAL STUDIES

(a) An apprentice who is not already in possession of the certificate or the alternative qualification prescribed in subclause (b) of this clause, in subjects related to the trade in which he is indentured, shall attend technical classes relevant to such trade and in accordance with the syllabuses prescribed by the Department of Higher Education, the Department of Indian Affairs, or the Administration of Coloured Affairs, as the case may be, for the National Technical Certificates, Parts I and II, or equivalent technical certificates, and such classes shall be conducted at the nearest

(c) Indien 'n werkgewer en 'n voornemende meerderjarige vakleerling ooreenkom, voordat hulle 'n vakleerling-kontrak aangaan, dat 'n hoër besoldiging betaal moet word as dié wat in subklousule (a) voorgeskryf word, moet sodanige hoër besoldiging in die kontrak gemeld en aan die vakleerling betaal word.

(d) (i) 'n Werkgewer moet die besoldiging voorgeskryf in hierdie klousule ten opsigte van elke vakleerling, uitgesonderd 'n vakleerling in sy vyfde jaar, wat enigeen van die opvoedkundige kwalifikasies in die Bylae hieronder gemeld, of gelykwaardige kwalifikasies, besit of verwerf, aanvul met minstens die bedrag in die Bylae gemeld:

BYLAE

Opvoedkundige kwalifikasies behaal voor of gedurende vakleerlingskap	Per week
GROEP 1	R
(i) Nasionale Junior Sertifikaat met werkwinkelpraktijk as een vak waarin geslaag is (ii) Nasionale Tegniese Sertifikaat, Deel I, met die betrokke ambagsteorie as een vak waarin geslaag is	1.35
GROEP 2	
(i) Nasionale Tegniese Sertifikaat, Deel II (ii) Standaard 10 sonder wiskunde as een vak waarin geslaag is (nie-universiteitstoelating)	4.50
GROEP 3	
(i) Nasionale Tegniese Sertifikaat, Deel III (ii) Standaard 10 met wiskunde as een vak waarin geslaag is (nie-universiteitstoelating) (iii) Deel A van die Nasionale Diploma vir Tegnici	5.85
GROEP 4	
(i) Nasionale Tegniese Sertifikaat, Deel IV (ii) Matrikulasiesertifikaat (universiteitstoelating) (iii) Deel B van die Nasionale Diploma vir Tegnici	6.75
GROEP 5	
(i) Nasionale Tegniese Sertifikaat, Deel V (ii) Deel C van die Nasionale Diploma vir Tegnici (iii) Gedeeltelike B.Sc. (slaag in drie vakke)	8.10
GROEP 6	
(i) Nasionale Tegniese Diploma (ii) Deel D van die Nasionale Diploma vir Tegnici	11.25

(ii) die bedrae voorgeskryf ingevolge paragraaf (i) is nie kumulatief nie maar is betaalbaar ten opsigte van slegs een, te wete, die hoogste sertifikaat of diploma wat verwerf is. Enige bedrag waarop 'n vakleerling ingevolge genoemde paragraaf geregtig is, moet, waar die betrokke sertifikaat of diploma gedurende sy leertyd verwerf is, betaal word vanaf die datum van uitreiking daarvan.

4. TEGNIESE STUDIES

(a) 'n Vakleerling wat nie reeds ten opsigte van vakke wat betrekking het op die ambag waarvoor hy ingeboek is, in besit is van die sertifikaat of die alternatiewe kwalifikasie wat in subklousule (b) van hierdie klousule voorgeskryf word nie, moet tegniese klasse bywoon wat met sodanige ambag in verband staan, en wat ooreenkom met die leerplanne wat deur die Departement van Hoër Onderwys, die Departement van Indiërsake of die Administrasie van Kleurlingsake, na gelang van die geval, voorgeskryf word vir die Nasionale Tegniese Sertifikaat, Deel I en Deel II, of gelykwaardige tegniese sertifikate, en dié klasse moet

technical institution maintained wholly or partly from public funds and catering for the racial group to which the apprentice belongs: Provided that where facilities for class attendance in any course or part thereof do not exist within 12 miles of the apprentice's residence or within 12 miles of his working place where attendance is required of him during ordinary working hours, he may in lieu of attendance take a correspondence course conducted by the Witwatersrand Technical College for the said course or part thereof.

(b) An apprentice shall attend technical classes or take correspondence courses until he attains the National Technical Certificate, Part II, or equivalent technical certificate: Provided that an apprentice who fails in the examination for the said certificate but obtains a pass in the trade theory relevant to the trade in which he is indentured, shall not be required to attend further classes or take further correspondence courses, as the case may be.

(c) (1) Where facilities for technical class attendance by continuous course of study exist, an apprentice shall attend such classes on 5 days per week during his ordinary hours of work, for the duration of the first complete course which, but for absence of the nature referred to in subclause (f), he is able to attend.

(2) Where facilities of the nature referred to in paragraph (1) do not exist, an apprentice shall, within 30 days of the date of registration of this contract, or, if he is at that date undergoing military training, within 30 days of his return from such training, enrol for class attendance at the technical institution concerned and shall commence attendance on a date to be determined by the said institution. Such attendance shall be for one academic year during the apprentice's ordinary hours of work, as nearly as practicable either—

- (i) for 8 hours on 1 day per week; or
- (ii) for 4 hours on each of 2 days per week:

Provided that in neither case shall attendance extend beyond 7.15 p.m.

(3) Compulsory attendance of classes after an apprentice has complied with the requirements of paragraph (1) or (2), shall be outside working hours: Provided that if the apprentice attains the full certificate for which he has written an examination, he shall continue to attend classes during ordinary working hours on the basis prescribed in paragraph (1) or (2), as the case may be.

(4) An apprentice who attends classes in terms of paragraph (1) shall, for the duration of such course, not be required by his employer to report for work.

(d) An apprentice taking a correspondence course in terms of subclauses (a) and (b) shall, where the Registrar of Apprenticeship has determined a place for the study of such a correspondence course, study at such place and the provisions of subclause (c) shall *mutatis mutandis* apply to such apprentice.

(e) Notwithstanding the provisions of subclause (b), an apprentice who after attending a continuous course of study or after 2 years' class attendance or after taking a correspondence course for 2 years, or after a combination of these circumstances, has not attained the certificate for which he was enrolled at the time of commencement of his technical studies, shall not be required to attend any further classes or take any further correspondence courses, as the case may be.

(f) An apprentice who because of absence on military training in terms of the Defence Act, 1957, as amended, is unable to attend technical classes for the duration of a continuous course of study or to attend technical classes or follow a correspondence course for at least half an academic

bygewoon word by die naaste tegniese inrigting wat uitsluitlik of gedeeltelik uit openbare fondse in stand gehou word en wat bedoel is vir die rassegroep waaraan die vakleerling behoort: Met dien verstande dat waar daar geen fasiliteite beskikbaar is nie vir die bywoning van klasse in 'n kursus of 'n gedeelte daarvan binne 12 myl vanaf die vakleerling se woning of binne 12 myl vanaf sy werkplek waar daar van hom vereis word om klasse gedurende die gewone werkure by te woon, hy in plaas van sodanige bywoning 'n korrespondensiekursus mag volg wat deur die Witwatersrandse Tegniese Kollege vir genoemde kursus of 'n gedeelte daarvan aangebied word.

(b) 'n Vakleerling moet tegniese klasse bywoon of korrespondensiekursusse volg totdat hy in die eksamen vir die Nasionale Tegniese Sertifikaat, Deel II, of gelykwaardige tegniese sertifikaat, geslaag het: Met dien verstande dat 'n vakleerling wat in die eksamen vir genoemde sertifikaat druip maar wat wel slaag in die ambagsteorie wat betrekking het op die ambag waarvoor hy ingeboek is, nie verdere klasse hoef by te woon of verdere korrespondensie kursusse hoef te volg nie, na gelang van die geval.

(c) (1) Waar fasiliteite vir die bywoning van tegniese klasse by wyse van 'n aaneenlopende studiekursus bestaan, moet 'n vakleerling sodanige klasse bywoon op vyf dae van die week gedurende sy gewone werkure, vir die duur van die eerste volledige kursus wat hy, behalwe vir afwesigheid van die aard vermeld in subklousule (f), in staat is om by te woon.

(2) Waar fasiliteite van die aard vermeld in paragraaf (1) nie bestaan nie, moet 'n vakleerling binne 30 dae na die datum van registrasie van sy kontrak of, as hy op daardie datum militêre opleiding ondergaan, binne 30 dae ná sy terugkeer van sodanige opleiding, hom by die betrokke tegniese inrigting vir klasbywoning laat inskryf en klasse begin bywoon op 'n datum deur die betrokke inrigting bepaal. Sodanige bywoning geskied vir een akademiese jaar gedurende die vakleerling se gewone werkure so naby doenlik vir—

- (i) òf agt uur op een dag per week;
- (ii) òf vier uur op elk van twee dae per week:

Met dien verstande dat bywoning in geen geval later as 7.15 nm. mag duur nie.

(3) Verpligte bywoning van klasse nadat 'n vakleerling aan die vereistes van paragraaf (1) of (2) voldoen het, geskied buite die gewone werkure: Met dien verstande dat, as 'n vakleerling die volle sertifikaat waarvoor hy eksamen geskryf het, verwerf, hy nog steeds die klasse gedurende gewone werkure moet bywoon op die grondslag voorgeskryf in paragraaf (1) of (2), na gelang van die geval.

(4) Van 'n vakleerling wat klasse ingevolge paragraaf (1) bywoon, mag 'n werkgever nie vereis dat hy hom vir die duur van sodanige kursus vir werk aanmeld nie.

(d) 'n Vakleerling wat 'n korrespondensiekursus ingevolge subklousules (a) en (b) volg, moet, waar die Registrateur van Vakleerlinge 'n studieplek vir sodanige korrespondensiekursus bepaal het, by sodanige plek studeer en die bepalinge van subklousule (c) is *mutatis mutasind* op sodanige vakleerling van toepassing.

(e) Ondanks die bepalinge van subklousule (b), word daar nie van 'n vakleerling vereis om verdere klasse by te woon of verdere korrespondensiekursusse te volg nie, na gelang van die geval, indien hy, nadat hy 'n aaneenlopende studiekursus bygewoon het of nadat hy twee jaar lank klasse bygewoon of 'n korrespondensiekursus gevolg het, of na 'n sameloop van hierdie omstandighede, nie die sertifikaat verwerf het waarvoor hy ten tye van die begin van sy tegniese studie ingeskryf is nie.

(f) Van 'n vakleerling wat, as gevolg van afwesigheid vir militêre opleiding ingevolge die Verdedigingswet, 1957, soos gewysig, nie in staat is om tegniese klasse vir die duur van 'n aaneenlopende studiekursus by te woon of om tegniese klasse by te woon of 'n korrespondensiekursus te

year, as the case may be, shall not be required to pursue his studies during such year.

(g) The provisions of subclauses (c) and (d) shall *mutatis mutandis* apply to an apprentice, other than an apprentice in his fifth year, who has complied with the provisions of subclause (b) or who is already in possession of a higher technical qualification and voluntarily pursues studies relevant to the trade in which he is indentured.

5. PAYMENT OF CLASS OR COURSE AND EXAMINATION FEES

An employer shall advance to the technical institution concerned the class or course fees and the examination fees payable by an apprentice who is required, or who in terms of clause 4 (g) elects, to attend any classes or follow correspondence courses or to enter for any examination, and may deduct the amount so advanced from the wages of the apprentice in equal weekly instalments during a period of 12 months from the date on which the advance was made: Provided that—

- (i) if, at an examination, the apprentice attains the certificate for which he had entered, the full amount deducted in respect of class or course fees and examination fees for that examination shall be refunded to him by the employer;
- (ii) if the apprentice fails to attain the certificate mentioned in (i) the refunds of class or course fees and examination fees for the examination shall be made only in respect of those subjects in which the apprentice obtained a pass at that examination unless he attended at least 90 per cent of the possible number of classes or, in the case of a correspondence course, completed at least 90 per cent of the full number of papers during that calendar year, in which case he shall be entitled to a refund of the full amount deducted in respect of class or course fees, as the case may be.

6. TRADE TESTS

(a) An apprentice shall undergo a trade test, conducted by the Departments of Labour and of Higher Education, as shortly as practicable before the end of the fourth year of his period of apprenticeship, in the practice of the trade in which he is indentured: Provided that in the case of an apprentice who is indentured in the trade *Instrument Mechanician: Industrial Instrumentation and Process Control* or in the trade *Millwright (Electro-Mechanician)* the trade test shall be undertaken as shortly as practicable before the end of the fifth year of his period of apprenticeship.

(b) An apprentice who has attained a pass at National Technical Certificate, Part II or equivalent, level in the theory of the trade in which he is indentured, may voluntarily undergo a qualifying trade test after he has completed two and a half years of his period of apprenticeship. A further voluntary qualifying test or tests may be undertaken on a date or dates to be determined by the Departments of Labour and of Higher Education.

(c) (i) An apprentice [other than an apprentice indentured in the trade (*Electroplating, Instrument Mechanician: Industrial Instrumentation and Process Control, Millwright (Electro-Mechanician)* or *Rigging*)] whose contract was registered before the date on which these conditions become effective, and who fails a trade test undertaken in terms of subclause (a) or (b) before the end of the fourth year of his period of apprenticeship, may, whether or not he is in possession of the qualification referred to in subclause (b), voluntarily undergo a qualifying trade test in the fifth year

volg vir minstens die helfte van 'n akademiese jaar nie, na gelang van die geval, word daar nie vereis dat hy sy studies gedurende sodanige jaar voortsit nie.

(g) Die bepalings van subklousules (c) en (d) is *mutatis mutandis* van toepassing op 'n vakleerling uitgesonderd 'n vakleerling in sy vyfde jaar, wat voldoen het aan die bepalings van subklousule (b) of wat reeds in besit is van 'n hoër tegniese kwalifikasie en wat sy studies in verband met die ambag waarvoor hy ingeboek is, vrywillig voortsit.

5. BETALING VAN KLAS- OF KURSUS- EN EKSAMENGELDE

'n Werkgewer moet aan die betrokke tegniese inrigting die klas- of kursusgelde en die eksamengelde voorskiet wat betaalbaar is deur 'n vakleerling van wie daar vereis word of wat ingevolge klousule 4 (g) verkies om klasse by te woon of korrespondensiekursusse te volg of om vir 'n eksamen in te skryf, en mag die bedrag aldus voorgeskiet, van die loon van die vakleerling aftrek in gelyke weeklikse paaie-mente gedurende 'n tydperk van 12 maande vanaf die datum waarop die voorskot betaal is: Met dien verstande dat—

- (i) indien die vakleerling in 'n eksamen die sertifikaat verwerf waarvoor hy ingeskryf het, die volle bedrag wat ten opsigte van klas- of kursus- en eksamengelde vir daardie eksamen afgetrek is, deur die werkgewer aan hom terugbetaal moet word;
- (ii) indien die vakleerling nie daarin slaag om die sertifikaat in (i) gemeld, te verwerf nie, die terugbetaling van klas- of kursus- en eksamengelde vir die eksamen slegs gedoen hoef te word ten opsigte van daardie vakke waarin die vakleerling in daardie eksamen geslaag het, tensy hy minstens 90 persent van die moontlike getal klasse bygewoon het of, in die geval van 'n korrespondensiekursus, minstens 90 persent van die volle getal vraestelle gedurende daardie kalenderjaar voltooi het, in welke geval hy geregtig is op 'n terugbetaling van die volle bedrag wat ten opsigte van klas- of kursusgelde, na gelang van die geval, afgetrek is.

6. AMBAGSTOETSE

(a) 'n Vakleerling moet so kort moontlik voor die einde van die vierde jaar van sy leertyd 'n ambagstoets, wat deur die Departement van Arbeid en die Departement van Hoër Onderwys afgeneem word, aflê in die praktyk van die ambag waarvoor hy ingeboek is: Met dien verstande dat in die geval van 'n vakleerling wat ingeboek is in die ambag *Instrumentwerktuigkundige: Industriële instrumentasie en prosesbeheer* of in die ambag *Meulmaker (elektro-meganikus)* die ambagtoets afgelê moet word so kort moontlik vóór die einde van die vyfde jaar van sy leertyd.

(b) 'n Vakleerling wat op die peil van die Nasionale Tegniese Sertifikaat, Deel II of op die peil van 'n gelykwaardige kwalifikasie geslaag het in die ambagsteorie wat betrekking het op die ambag waarvoor hy ingeboek is, mag vrywillig 'n kwalifiserende ambagstoets aflê nadat hy twee en 'n halfjaar van sy leertyd voltooi het. 'n Verdere vrywillige toets of toetse mag afgelê word op 'n datum of datums wat deur die Departement van Arbeid en die Departement van Hoër Onderwys bepaal word.

(c) (i) 'n Vakleerling (uitgesonderd 'n vakleerling wat ingeboek is in die ambag *Elektroplaatwerk, Instrumentwerktuigkundige: Industriële instrumentasie en prosesbeheer, Meulmaker (elektro-meganikus)* of *Takelwerk*) wie se kontrak geregistreer is vóór die datum waarop hierdie voorwaardes van krag word en wat drup in 'n ambagstoets wat ingevolge subklousule (a) of (b) afgelê word vóór die einde van die vierde jaar van sy leertyd mag, ondanks die feit dat hy nie in besit is van die kwalifikasie wat in subklousule (b) vermeld word nie, in sy vyfde jaar vrywillig 'n

of his apprenticeship on a date to be determined by the Departments of Labour and of Higher Education.

(c) (ii) The period of apprenticeship of an apprentice [other than an apprentice who is indentured in the trade *Electroplating, Instrument Mechanician: Industrial Instrumentation and Process Control, Millwright (Electro-Mechanician)* or *Rigging*] whose contract is registered on or after the date on which these conditions become effective and who fails a trade test undertaken in terms of subclause (a) or (b) before the end of the fourth year of his period of apprenticeship, shall be extended by a period of 12 months: Provided that during such extended period the apprentice may, whether or not he is in possession of the qualification referred to in subclause (b), voluntarily undergo a qualifying trade test on a date to be determined by the Departments of Labour and of Higher Education.

(d) A fee of R6.00 shall be payable by an apprentice in respect of the second or any subsequent trade test undertaken on a voluntary basis in terms of this clause.

(e) An apprentice undergoing a trade test in terms of this clause shall in respect of the period spent in connection with one voluntary test and the compulsory test be paid his ordinary wage by his employer in respect of such period of absence from work.

(f) A period of absence from work for the purpose of undergoing a trade test in terms of this clause shall not be deemed to be absence from work for the purpose of section 26 of the Act.

7. COURSES OF TRAINING

An employer shall provide an apprentice with practical training in the trade in which he is indentured in accordance with the schedule to this clause. An apprentice shall as far as practicable be trained under the regular supervision of an artisan qualified to train him in the trade in which he is indentured.

SCHEDULE

Logbook Symbols	Practical Training
	(1)
	<i>Trade: ARCHITECTURAL METALWORKING (2)</i>
1.1	Safety precautions applicable to the trade.
1.2	Care and use of tools.
1.3	Simple operation on capstan lathe.
1.4	Use of acetylene torch.
1.5	Simple bending.
1.6	Marking off and cutting with guillotine.
1.7	Use of standard wire gauge.
1.8	Knowledge and use of non-ferrous materials.
1.9	Knowledge of sections, e.g. channels, angles, etc.
1.10	Riveting.
1.11	Soldering.
1.12	Elementary calculation: Use of British and metric measurements.
2.1	Operating shaper.
2.2	General lathe work.
2.3	Grinding of tools for lathes and shapers.
2.4	Use of nibbling machine.
2.5	Use of metal band saw.
2.6	Use of power shears.
2.7	Operating fly press.
2.8	Operating wire and swaging machines.
2.9	Rolling of sheets and flat sections.
2.10	Bending of tubes.
2.11	Brazing with acetylene torch.
2.12	Welding of mild steel sheet.
2.13	Interpretation of working drawings.
2.14	Elementary sheetmetal work.
2.15	Development of patterns.

kwalifiserende ambagstoets aflê op 'n datum wat deur die Departement van Arbeid en die Departement van Hoër Onderwys bepaal word.

(c) (ii) Die leertyd van 'n vakleerling (uitgesonderd 'n vakleerling wat ingeboek is in die ambag *Elektroplaatwerk, Instrumentwerktuigkundige: Industriële instrumentasie en prosesbeheer, Meulmaker (elektro-meganikus)* of *Takelwerk*) wie se kontrak geregistreer is op of ná die datum waarop hierdie voorwaardes van krag word en wat druipt in 'n ambagstoets wat ingevolge subklousule (a) of (b) afgelê word vóór die einde van die vierde jaar van sy leertyd, word met 'n tydperk van 12 maande verleng: Met dien verstande dat die vakleerling gedurende sodanige verlengde tydperk vrywillig 'n kwalifiserende ambagstoets mag ondergaan op 'n datum wat deur die Departement van Arbeid en die Departement van Hoër Onderwys bepaal word, ondanks die feit dat hy nie in besit is van die kwalifikasie wat in subklousule (b) vermeld word nie.

(d) 'n Bedrag van R6.00 is deur 'n vakleerling betaalbaar ten opsigte van die tweede of enige daaropvolgende kwalifiserende ambagstoets wat op 'n vrywillige grondslag kragtens hierdie klousule afgelê word.

(e) 'n Vakleerling wat 'n ambagstoets ingevolge hierdie klousule ondergaan, moet ten opsigte van die tydperk wat bestee word in verband met een vrywillige toets en die verpligte toets, sy gewone besoldiging deur sy werkgever betaal word ten opsigte van sodanige tydperk van afwesigheid van werk.

(f) 'n Tydperk van afwesigheid van werk vir die doel om 'n ambagstoets ingevolge hierdie klousule te ondergaan, word, vir die toepassing van artikel 26 van die Wet, nie geag afwesigheid van werk te wees nie.

7. OPLEIDINGSKURSUSSE

'n Werkgever moet 'n vakleerling die praktiese opleiding in die ambag waarvoor hy ingeboek is, gee volgens die bylae van hierdie klousule. 'n Vakleerling moet, vir sover prakties moontlik, opgelei word onder die gereelde toesig van 'n ambagsman wat bevoeg is om hom op te lei in die ambag waarvoor hy ingeboek is.

BYLAE

Logboek-simbool	Praktiese opleiding
	(1)
	<i>Ambag: ANKERWIKKELING (2)</i>
1.1	Veiligheidsmaatreëls van toepassing op die ambag.
1.2	Versorging en gebruik van gereedskap.
1.3	Versorging van werktuigtoerusting.
1.4	Aanmekearsit van onderdele.
1.5	Vyl- en saagwerk; gebruik van stok en snymoere; moerdraadsnywerk.
1.6	Elementêre afmerk.
1.7	Soldeerwerk.
1.8	Boorwerk.
1.9	Uitmekaarhaal, skoonmaak en voorbereiding van motore en generators vir wikkeling.
1.10	Gebruik van verskillende soorte isoleermateriaal.
2.1	Spoele vir GS- en WS-masjiene maak en insit.
2.2	Opstel van masjinerie.
2.3	Vormwikkeling.
2.4	Klemme van GS- en WS-masjiene verbind.
2.5	Werkwyse by transformatorwikkeling, bandwikkeling en olievulling.
2.6	Ster-en-delta-wikkelings.
2.7	Algehele herstel en herwikkeling van motore, generators, transformators en konvertors.
2.8	In lyn bring.
2.9	Balansering.
2.10	Gebruik van toetsinstrumente.
2.11	Aanmekearsit.
2.12	Werk volgens diagramme en tekenings.
2.13	Herbou van kerns.
3.	Hersiening en onafhanklike werk.

Logbook Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
2.16 2.17 2.18 2.19 2.20 2.21 3	Marking off. Making of dies for draw bench work. Welding of aluminium, stainless steel and copper with torch. Centre lathe screw cutting and form turning. Light furnace heating and smithing. Setting out of scale drawings to full size. Revision and independent work.		(2) <i>Ambag: ARGITEKTONIESE METAALWERK (1)</i>
1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 2.10 2.11 2.12 2.13 3	(2) <i>Trade: ARMATURE WINDING (1)</i> Safety precautions applicable to the trade. Care and use of tools. Care of working equipment. Fitting together of components. Filing, sawing, use of stocks and dies, tapping. Elementary marking off. Soldering. Drilling. Stripping, cleaning and preparing motors and generators for winding. Use of various types of insulating materials. Making up and inserting coils for D.C. and A.C. machines. Machine setting up. Former winding. Connecting terminals of A.C. and D.C. machines. Transformer winding, taping and oil filling procedures. Star and delta windings. Complete repair and rewinding of motors, generators, transformers and converters. Alignment. Balancing. Use of testing instruments. Assembly. Working to diagrams and drawings. Rebuilding of cores. Revision and independent work.	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 2.10 2.11 2.12 2.13 2.14 2.15 2.16 2.17 2.18 2.19 2.20 2.21 3	Veiligheidsmaatreëls van toepassing op die ambag. Versorging en gebruik van gereedskap. Eenvoudige werk op rewolwerdraaibank. Gebruik van asetileenbrander. Eenvoudige buigwerk. Afmerk en met valmes sny. Gebruik van standaarddraaddikte. Kennis en gebruik van nie-ysterhoudende materiaal. Kennis van profiele, bv. U-ysters, hoekysters, ens. Klinkwerk. Soldeerwerk. Elementêre berekening: Gebruik van Britse en metrieke mate. Sterkarmskaafmasjien bedien. Algemene draaibankwerk. Draaibank- en sterkarmskaafmasjiengereedskap slyp. Gebruik van plaatsnymasjien. Gebruik van metaalbandsaag. Gebruik van kragstêr. Skroefpers bedien. Geleidings- en saalsmeemasjiene bedien. Rol van plate en afgeplatte dele. Buig van pype. Sweis soldeer met asetileenbrander. Sweis van weekstaalplaat. Gebruikmaking van werktekenings. Elementêre plaatmetaalwerk. Ontwikkeling van patrone. Afmerk. Die maak van vormsters vir trekbankwerk. Sweis van aluminium, vlek-vry staal en koper met 'n vlam. Draadsnywerk en vorms op 'n senterdraaibank draai. Ligte kaggelverhitting en smidswerk. Skaaltekenings op hulle volle grootte uiteensit. Hersiening en onafhanklike werk.
1.1 1.2 1.3 1.4 1.5 1.6 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 2.10 2.11 2.12 2.13 3	(3) <i>Trade: BLACKSMITHING (12)</i> Safety precautions applicable to the trade. Care and use of tools. Building and maintaining of fires in open hearths. Correct method of striking. Use of sledges, swages and dies. Knowledge and properties of ferrous metals. Working with striker. Making and repairing of tools. Hardening and tempering. Calculating of quantities of material required. Correct temperature for forging and fire welding and forgings generally. Handling of and forging with steam or power hammers. All anvil work. Working to drawings. Revision and independent work.	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 2.1 2.2 2.3 2.4 2.5 2.6 2.7 3	(3) <i>Ambag: BOOT- EN SKEEPSBOU (HOUT) (4)</i> Veiligheidsmaatreëls van toepassing op die ambag. Gebruik, slyp en onderhoud van handgereedskap. Gebruik van verskillende soorte timmerhout, laaghout en hardbord. Gebreke in hout. Alle soorte lasse. Lym en vasspyker. Afmerk en maak van eenvoudige lasse. Lees van tekenings. Werk met hout. Gebruik van meganiese en kraggereedskap. Verandering en herstel van bote en/of skepe. Sny, vorm en in stoempers buig. Naatkalfaatwerk. Vassit van houttoebehore. Stutting en algemene uitrusting. Hersiening en onafhanklike werk.
1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 2.1	(4) <i>Trade: BOATBUILDING AND SHIPWRIGHTING (WOOD) (3)</i> Safety precautions applicable to the trade. Use, sharpening and maintenance of hand tools. Use of various types of timber, plywoods and hard-boards. Timber defects. All types of joints. Gluing and nailing. Setting out and making simple joinery. Reading of drawings. Working with wood.	1.1 1.2 1.3 1.4 2.1 2.2 2.3 2.4 2.5 2.6 3	(4) <i>Ambag: DIESELPASWERK (9)</i> Veiligheidsmaatreëls van toepassing op die ambag. Versorging en gebruik van gereedskap en werkwinkel-toerusting. Versorging van dieselenjins terwyl hulle herstel word. Dieselenjins uithaal en uitmekaarhaal. Opleiding in die werking van binnebrandenjins. Opspoor en herstel van foute. Elementêre onderrig in masjienwerkwinkel. Herstel, toets en opknop van enjins en onderdele. Herstel van brandstofinspuitpompe en spuitstukke, met inbegrip van kalibrering. Installeer, rig en stel van alle onderdele. Hersiening en onafhanklike werk.

Logbook Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
2.2 2.3 2.4 2.5 2.6 2.7 3	Use of mechanical and power tools. Alteration and repair of boats and/or ships. Cutting, shaping and bending in steam press. Seam caulking. Affixing wooden accessories. Shoring up and general fitting out. Revision and independent work.		(5) <i>Ambag: DRAAIWERK (MET INBEGRIIP VAN MASJENWERK) (38)</i>
	(5) <i>Trade: BRICKLAYING (REFRACTORY) (19)</i>	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 3	Veiligheidsmaatreëls van toepassing op die ambag. Versorging en gebruik van sny- en vormgereedskap. Versorging en gebruik van meetgereedskap en -instrumente. Slyp van bore en gereedskap. Eenvoudige werk op senterdraaibank. Werk met boor- en vormmasjiene. Lees van tekenings en gebruikmaking daarvan. Die korrekte toevoer en spoed vir verskillende materiale en werksaamhede. Gevorderde werk op senterdraaibank. Inwendige en uitwendige skroefdraadsnywerk. Meervoudige skroefdrade. Verskillende soorte skroefdrade. Gebruik van spesiale gereedskap en setmate. Opstel van werk en gebruik van stelplaat. Inwendige en uitwendige tapsdraaiwerk. Werk op freesmasjiene met gebruikmaking van hegstukke. Hersiening en onafhanklike werk.
1 1.1 1.2 1.3 1.4 1.5 1.6 2 2.1 2.1.1 2.1.2 2.1.3 2.1.4 2.1.4.1 2.1.5 2.1.5.1 2.1.6 2.1.7 2.1.8 2.2 2.2.1 2.2.2 2.2.3 2.2.4 2.2.5 2.2.5.1 2.2.5.2 2.2.5.3 3 3.1 4 5 6	Safety: Drill in safe working habits throughout apprenticeship. Precautions related to using the hand tools of the trade. Precautions related to noxious and flammable gases. Precautions related to dust conditions. Precautions related to the use of refractory lined vessels for handling molten metals. Precautions related to the use of scaffolding. Precautions related to the use of brick cutting machines. Bricklaying: Care and use of levels, squares, trowels, straight edges, tapes, rules, builder's lines, comb hammers and bolsters. Non-refractory brickwork: Materials and methods used for making non-refractory bricks. Types, sizes and type names of bricks used in the building industry. Different types of bonds used in the building industry. Binders: Properties of the different cement and lime binders used in the building industry. Mortars: Mix proportions of sand-lime and sand-lime-cement mixes for building and plastering. Types of sand used in building operations. Types of finishes to walls e.g. face work with various types of pointing, and the various plaster finishes. Building of face and plaster finishing of walls of different thicknesses (including cavity walls) using the bonds used in the trade. Building-in of window and door openings in all thicknesses of walls. Drawing-up of corners. Plastering of walls. Taking of levels; 3:4:5 rule for setting out 90° angles; checking for squareness by measuring diagonals. Set out building foundations from construction drawings. Refractory brickwork: Reasons for the use of refractory materials in industrial processes. Types of refractory materials commonly used. Methods and materials used in refractory brickmaking. Refractory mortars and cements. Expansion and contraction problems in refractory work. Expansion joints. Building of walls of different thicknesses using different bonds. Building of furnace piers. Methods used in building arches; various designs for arches used in flue and furnace work. Building of different types of arches used in furnace and flue work. Cutting of refractory bricks required for special applications in flue and furnace work accurately by hand and machine. Concrete work: Properties of concrete; applications of concrete in building and structural work; materials used in making concrete; mix proportions of sand, cement and aggregate for different applications; correct methods for mixing; purpose of and correct placing of reinforcement in concrete work; construction of and materials used for concrete shuttering; importance of vibrating or ramming concrete during placing. Placing of concrete for foundations, floors and building structures. Topping of cement floors. Drying-out procedures for refractory lined vessels and structures prior to placing into service. Repair of furnaces, kilns, flues, refractory lined vessels and pipes. Bricking-up of furnaces, vessels and other refractory lined structures from drawings. Construction and repair of buildings.	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 2.10 2.11 2.12 2.13 2.14 2.15 2.16 2.17 3	(6) <i>Ambag: ELEKTRISIËN (14)</i> Veiligheidsmaatreëls van toepassing op die ambag. Versorging en gebruik van handgereedskap. Versorging en gebruik van werkwinkeltoerusting. Basiese paswerk, nl. vyl, saag, skroef- en moerdraad sny. Elementêre afmerk. Soldeerwerk. Boorwerk. Eenvoudige installasies met inbegrip van gleuwe in mure kap, installering van leipype en die aanbring van toebehore. Lees van bedradingdiagramme en praktiese bedrading. Metodes van aarding. Enkel- en tweewegskakelaars. Klokies en aanwysers—battery en transformators. Elementêre aanmeakaarsit en installering van paneelborde. Aanwending en gebruik van megger. Kontinuiteit, isolering en aardtoetsing. Installering en onderhoud van verdeelborde, skakelborde en hoofgeleidingsborde. Gebruik en onderhoud van meetinstrumente en meters. Gebruik en onderhoud van kontroletoestelle, reostate en aansitters. Gebruik en kennis van laste op skakelaars, stroombrekers en olie-stroombrekers. Gebruik en onderhoud van afstandbeheertoestelle. Installering en onderhoud van motore. Gebruik en onderhoud van aardlekttoerusting. Maak van kables. Kennis van aardingstelsels en materiaal wat gebruik word. Toets, foute soek en herstel by alle soorte installasies. Werk volgens diagramme en tekenings. Bedrading van multihitte-skakelaars en termostate. Installering en onderhoud van transformators. Gebruik van en soorte insoleerolie. Verskillende soorte aardaftappings. Hersiening en onafhanklike werk.
			(7) <i>Ambag: ELEKTRISIËN (INGENIEURSWESE) (15)</i>
		1.1 1.2 1.3 1.4 1.5 1.6 2.1 2.2 2.3	Veiligheidsmaatreëls van toepassing op die ambag. Versorging en gebruik van werkwinkeltoerusting. Elementêre lees van tekenings. Elementêre gebruik van meganiese meettoerusting. Elementêre afmerk. Versorging en gebruik van handgereedskap. Kennis van elektriese meetinstrumente en beskermelêrs. Lees van tekenings en diagramme van verbindinge. Aanmeakaarsit en bedrading van skakelborde.

Logbook Symbols	Practical Training
	(6)
	<i>Trade: CARPENTRY (35)</i>
1.1	Safety precautions applicable to the trade.
1.2	Knowledge and care of hand tools and their maintenance.
1.3	Knowledge and use of materials.
1.4	Measuring of timber.
1.5	Technical terms.
1.6	Various types of joints.
1.7	Making of simple joints.
2.1	Knowledge, care and maintenance of machine tools.
2.2	Reading and setting out from drawings.
2.3	Fitting and fixing of joinery.
2.4	Carrying out building repairs, renovations and alterations.
2.5	Erecting all types of scaffolding.
2.6	Measuring up for order of materials required.
2.7	Heavy timber structures and maintenance.
3	Revision and independent work.
	(7)
	<i>Trade: COPPERSMITHING (17)</i>
1.1	Safety precautions applicable to the trade.
1.2	Care and use of tools.
1.3	Simple hand work.
1.4	Reading of drawings.
2.1	General training in working non-ferrous metals by hand.
2.2	Use of mechanical and/or power tools.
2.3	Making of pipes and fittings.
2.4	Pipe bending.
2.5	Shaping by beating with hammer on anvil.
2.6	Cutting, rolling and bending.
2.7	Bolstering or hollowing of block to drawings or wooden patterns.
2.8	Making of templates.
2.9	Soldering and brazing.
3	Revision and independent work.
	(8)
	<i>Trade: DIE MAKING (31)</i>
1.1	Safety precautions applicable to the trade.
1.2	Care and use of hand tools and measuring instruments.
1.3	Drill sharpening.
1.4	Chipping, filing, sawing, scraping, drilling, reaming, tapping and screwing.
1.5	Reading of drawings and application thereof.
1.6	Knowledge of physical properties of various materials.
1.7	Operating shaping and drilling machines.
2.1	Preparation of dies, die designing and machine drawing including instruction in types of presses and ancillary equipment which influence die design.
2.2	Operating tool grinding machines, lathes, milling and manual or automatic copying die milling machines (including use of dividing head).
2.3	Heat treatment.
2.4	Making and repair of templates, gauges, jigs and fixtures.
2.5	Laying out impression plates.
2.6	Die cleaning and/or polishing.
2.7	Making of dies for moulding and/or castings, including use of epoxy resins.
2.8	Instruction in moulding techniques including hard facing.
2.9	Some blacksmith training in the manufacture of high speed steel chisels and form punches of the types used for bench work in impression sinking.
2.10	Marking out of the profile impressions with top and bottom edges and incorporating the necessary draft angles.
2.11	Marking out of leads to ensure that component is within tolerances in all aspects with the necessary contraction allowances.
3	Revision and independent work.

Logboek-simbool	Praktiese opleiding
2.4	Aanmeekaarsit en bedrading van motorbeheertoerusting, aansitters, kontaktors en instrumente.
2.5	Kennis van geleistamwerk.
2.6	Kennis van wikkeling en konstruksie van motore.
2.7	Kennis van wikkeling en konstruksie van transformators.
2.8	Die maak van kables en verseëling van kabelkaste.
2.9	Installering en onderhoud van lig- en kragstroomkringe in fabriek.
2.10	Onderhoud van elektriese installasies.
2.11	Toets, foutopsoring en herstel van elektriese toerusting in fabriek.
2.12	Onderhoud van skakeltuig, transformators en motore.
3	Hersiening en onafhanklike werk.
	(8)
	<i>Ambag: ELEKTRONIKA-MEGANIKUS (16)</i>
1.1	Veiligheidsmaatreëls van toepassing op die ambag.
1.2	Sorg vir en onderhoud van gereedskap en werkwinkel-uitrusting wat in die ambag gebruik word.
1.3	Inmeekaarsit en vervanging van onderdele.
1.4	Name en gebruik van verskillende soorte handgereedskap.
1.5	Onderdele aanmeekaarsoldeer (bedrading en gedrukte kringe met nadruk op halfgeleierwerk).
1.6	Boor.
1.7	Elementêre merkwêrk.
1.8	Gebruik van eenvoudige multimeters.
2.1	Sorg vir en onderhoud van WS- en GS-breuk-pk-motore wat in die elektronikanywerheid gebruik word.
2.2	Gebruik en konstruksie van bliksemafleiers wat in die elektronikanywerheid gebruik word.
2.3	Lees van kringdiagramme en simbole en toepassing van diensinstruksies.
2.4	Elementêre herstel-, stel- en onderhoudswerk aan eenvoudige kontroles, skakelaars en relê.
2.5	Kragtoevoerbronne (gereël en nie gereël).
2.6	Beskerming van uitrusting teen oorspannings, spanningstuwings, abnormale temperature, vog, meganiese spannings (veral in draagbare toestelle), stof, dampe, ens.
2.7	Volgens diagramme en tekenings werk.
2.8	Foute in elektroniese uitrusting opspoor deur gebruik te maak van toestelle in 2.9 genoem. (Sistematiese metodes moet beklemtoon word.)
2.9	Algemene kennis van toestelle wat in verband met elektroniese uitrusting gebruik word, soos ossilloskope, sinusgolfgenerators, reghoekgolfgenerators, kompleksgolfgenerators en puls generators, brûe, elektroniese voltmeters, buistoetsers, transistorkontroles en geigertellers.
2.10	Werk van WS- en GS-draai- en magnetiese versterkers.
2.11	Gebruik van oordraers vir die meet van tyd, vervorming, dikte, druk, getal, ens.
2.12	Elementêre telemeting van elektriese en fisiese hoeveelhede.
2.13	Elementêre werk met en kennis van stralingsdetektors, Geiger-Müller-buise en stralingsbronne.
2.14	Elementêre werk aan en kennis van die volgende: Relê- en skakelkringe, fotoëlektriese toestelle, elektromagnetiese toestelle, ossillatortoestelle, vastetaat-skakeltoestelle soos monostabiele en bistabiele toestelle, wipteenkringe, en kennis van sinchro- en servomeganismes.
2.15	Funksionele kennis van direkte aflees-tel- en -meettoestelle, syfervoltmeters en eenvoudige geheuetoesstelle.
2.16	Kennis van die opneem van seine (data) op magnetiese band.
2.17	Bereiding van gedrukte kringe en vervaardigingsmetodes.
2.18	Elementêre gebruik van binêrekodestelsels.
2.19	Gebruik van magnetiese kapasitatiewe en induktiewe nabyheidstoestelle.
2.20	Pulsosillators.
2.21	RF-verwarmingsuitrusting.
3	Hersiening en onafhanklike werk.
	(9)
	<i>Ambag: ELEKTROPLAATWERK (17)</i>
1.1	Veiligheidsmaatreëls van toepassing op die ambag.
1.2	Uitrusting in poleerafdeling, bv. spille, dweile, poleermiddels, uitlaatsels en stofverwydering.

Logboek Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
	(9) <i>Trade: DIESEL FITTING (4)</i>		
1.1	Safety precautions applicable to the trade.	1.3	Poleervolgordes van verskillende materiale en oppervlakke, en ook afwerking van afsettings, skuurborsel- en poleerwerk.
1.2	Care and use of tools and shop equipment.	1.4	Eenvoudige platering met koper, nikkel en chroom, en ook praktiese poleerwerk en bereiding van artikels vóór en ná platerwerk.
1.3	Care of diesel units while under repair.	1.5	Skoonmaak-, ontghries- en ontskaalmetodes met sure, alkali's of emulsies; in sianied en suur indompel en behoorlik afspoel.
1.4	Removal and dismantling of diesel units.	1.6	Werkstukhouers, patrone en rame ontwerp; patrone bedraad.
2.1	Training on operation of internal combustion engines.	1.7	Eenvoudige soorte elektriese uitrusting en hoe om dit te gebruik.
2.2	Diagnosing and rectification of faults.	2.1	Eienskappe en reghou van oplossings.
2.3	Elementary machine shop experience.	2.2	Volumetriese ontleding van oplossings; berekening van oppervlaktes, gewig en dikte van metaal neergeslaan.
2.4	Repairing, testing and overhaul of engines and component parts.	2.3	Bepaling van temperature, digtheid en pH deur eenvoudige metodes.
2.5	Repairing of fuel injection pumps and nozzles, including calibration.	2.4	Metodes om plateroplossings te kontroleer, ook dikte-toetsing en platering volgens spesifikasie.
2.6	Installation, alignment and adjustment of all components.	2.5	Herstel van foutiewe oplossings.
3	Revision and independent work.	2.6	Kennis van neerslae en onsuiverhede en bedorwe oplossings.
	(10) <i>Trade: DIESINKING AND ENGRAVING (30)</i>	2.7	Platering van verskillende onedelemetale, ook snel- en blinkplatering; korrekte plateervolgordes.
1.1	Safety precautions applicable to the trade.	2.8	Allooiplatering en anodisering.
1.2	Care and use of hand tools.	2.9	Foute opspoor.
1.3	Care and use of measuring instruments viz. vernier, depth gauge and micrometer.	2.10	Afwerking met chemikalieë; kleur, ook die kleur van aluminium en sy allooië; bronswerk en die gebruik van lakvernis.
1.4	Elementary chipping, drilling, reaming, sawing, scraping, screwing and tapping.	2.11	Gevorderde produksiepolering.
1.5	Sharpening of drills and cutters.	2.12	Behandeling van platerwinkels se afloopvloeiastowwe.
1.6	Reading of drawings and art work and application thereof.	3.1	Elementêre kennis van fabriekskosteberekening en gehaltekontrolle.
1.7	Knowledge of physical properties of material used in the trade.	3.2	Hersiening en onafhanklike werk.
1.8	Preparation of masters.		
1.9	Elementary modelling in clay and casting.		(10)
1.10	Knowledge of reproducing of dies.		<i>Ambag: ELEKTROTEGNIËSE DRAADWERKER (13)</i>
1.11	Simple letter cutting.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
1.12	Hand punching and layout of letters on dies.	1.2	Kennis, versorging en gebruik van gereedskap.
1.13	Elementary heat treatment.	1.3	Kennis, versorging en gebruik van instrumente.
2.1	Preparation of dies.	1.4	Apparaat wat by bedrading gebruik word.
2.2	Hand and machine engraving of block, script and fancy lettering.	1.5	Eenvoudige kringe bedraad.
2.3	Hand finishing of metal dies in relief.	1.6	Gleuwe in mure kap.
2.4	Preparation of sketches for customer. (Presentation drawing beginning with object drawing).	1.7	Tegniese terme.
2.5	Precision work with hand tools.	2.1	Bou, aanwending en stroomdravermoëns van die verskillende soorte skakelaars en uitskakelaars.
2.6	Marking off.	2.2	Lengte van onderbreking wat by eenhede onder 2.1 vereis word.
2.7	Operating machines applicable to the trade.	2.3	Bou en aanwending van die verskillende soorte verdeelborde.
2.8	Die cleaning and polishing.	2.4	Verskillende soorte geleidings- en isolermateriaal wat gebruik word by verdeelborde en -panele.
2.9	Modelling and preparation of masters.	2.5	Skakeling en beheer van elektrisiteit en sy aanwending by verskillende apparate en bybehorens soos dié in die ambag gevind.
2.10	Lettering and manuscript (pure).	2.6	Installering en gebruik van motore.
2.11	Elementary commercial art including layouts, design applicable to the trade and lettering and design of trademarks and badges.	2.7	Installering en gebruik van transformators.
2.12	Figure drawing including portraiture.	2.8	Installering en gebruik van ammeters en voltmeters.
3	Revision and independent work.	2.9	Installering en gebruik van isolators, plafonrosette, muursokke en -proppe.
	(11) <i>Trade: DOMESTIC APPLIANCES MECHANIC (14)</i>	2.10	Installering en gebruik van verskillende soorte lampe met inbegrip van gasontladingslampe.
1.1	Safety precautions applicable to the trade.	2.11	Installering en gebruik van lamphouers en leipype.
1.2	Care and use of hand tools and workshop equipment.	2.12	Algemene opleiding in die gebruiksmetodes by bedrading.
1.3	Simple repair and maintenance work under the personal supervision of a journeyman.	2.13	Gebruiksmetodes by die elektriese balansering van installasies.
1.4	Types of electrical diagrams generally found inside domestic appliances e.g. stoves.	2.14	Gebruiksmetodes by oop en bedekte tipes bedrading.
1.5	Fuses and wire ratings.	2.15	Verskillende tipes kringe wat by verskillende installasies gebruik word bv. by verligting en by motore.
2.1	General training in the maintenance and repair of domestic electrical appliances including refrigerators, electrical ranges, heaters, electric irons, washing machines and similar apparatus.	2.16	Aardingbeginsels, veral weerstande tussen aarde en installasies.
2.2	Operation and simple theory of: (a) Refrigerators. (b) Thermostats, including the continuously variable heat control used on hot plates. (c) Control of oven temperature.	2.17	Die verskillende metodes om vir foute te toets met spesiale klem op aarding.
		2.18	Voorsorgmaatreëls teen en behandeling vir elektriese skok.
		2.19	Praktiese toepassing van standaardbedradingsregulasies.
		3	Hersiening en onafhanklike werk.

Logbook Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
2.1	Knowledge of electrical measuring instruments and protection relays.	2.8	Gebruik en verbindings van oorladings- en kringbreek-beveiliging.
2.2	Reading of drawings and diagrams of connections.	2.9	Gebruik en verbindings van een- en meerfasige transformators.
2.3	Assembly and wiring of switchboards.	2.10	Drade in leipype insit en alle gewone hyserkringe bedraad.
2.4	Assembly and wiring of motor control gear, starters, contactors and instruments.	2.11	Bedrading van beheerpaneel.
2.5	Knowledge of bus-bar work.	2.12	Aan die gang sit, toets en stel van hyseruitrusting.
2.6	Knowledge of winding and construction of motors.	2.13	Gebruik van alle soorte elektriese meettoestelle asook megger en brugmegger.
2.7	Knowledge of winding and construction of transformers.	2.14	Foute opspoor en herstel.
2.8	Making of cables and sealing of cable boxes.	2.15	Lees van alle reguitlyn- en reëlmatige diagramme.
2.9	Installation and maintenance of factory lighting and power circuits.	2.16	Oprigting van veilige steiers.
2.10	Electrical plant maintenance.	2.17	Rangskikking van alle hyseruitrusting.
2.11	Testing, fault diagnosis and repair of factory electrical equipment.	2.18	Monter- en loodgieterwerk vir leispore.
2.12	Installation of switch-gear, transformers and motors.	2.19	Montering en pasmaak van luikgatinge, -deure en sluittoebchore.
3	Revision and independent work.	2.20	Bou van hysbakke en -rame.
		2.21	Gebruik van veiligheidstoestelle, deurwerkstelsel en beheertoestelle.
	(16)	2.22	Oprigting van alle soorte teengewigte en hysskagbuffers.
	Trade: ELECTRONICS MECHANICIAN (8)	2.23	Regsit van alle masjiene van onderdele af, met inbegrip van masjienbalke, masjiene, reëlaars, kiesers en beheertoestelle.
1.1	Safety precautions applicable to the trade.	2.24	Gebruik van toukatrol, kettingtakel, wenasse en veilige hantering van alle swaar uitrusting.
1.2	Care and maintenance of tools and workshop equipment applicable to the trade.	2.25	Gebruik van verskillende tourangskikkings in verband met hysers.
1.3	Fitting together and replacement of components.	2.26	Draadtoue monter en van sokke voorsien.
1.4	Names and use of various hand tools.	2.27	Gebruik van groewe in verband met dryf- en ander katrolwiele.
1.5	Soldering components (wiring and printed circuits with emphasis on semi-conductor work).	2.28	Inspeksie van toue om verslegting en moontlike oorblywende veilige gebruiksduur vas te stel.
1.6	Drilling.	2.29	Toets van veiligheidstoestelle en stel van korrekte oorwig.
1.7	Elementary marking off.	2.30	Herstel van hyseruitrusting insluitende hermetallisering van witmetaallaars.
1.8	Use of simple multimeters.	2.31	Herversoling van remme.
2.1	Care and maintenance of A.C. and D.C. fractional H.P. motors applicable to the electronics industry.	2.32	Pasmaak van spye.
2.2	Use and construction of lightning protection applicable to the electronics industry.	2.33	Verstelling van stootlaars.
2.3	Reading of circuit diagrams and symbols and interpretation of service instructions.	2.34	Stel van geslypte ratte.
2.4	Elementary repair, adjustment and maintenance of simple controls, switches and relays.	3	Hersiening en onafhanklike werk.
2.5	Power supplies (regulated and unregulated).		(16)
2.6	Protection of equipment against overvoltages, voltage surges, abnormal temperatures, moisture, mechanical stresses (particularly in portable equipment), dust, fumes, etc.		Ambag: INSTRUMENTWERKTUIGKUNDIGE: INDUSTRIËLE INSTRUMENTASIE EN PROSESBEHEER (20)
2.7	Ability to work to diagrams and drawings.	1	Veiligheid: Gedurende onderrig in veilige werkgewoontes dwarsdeur leertyd.
2.8	Fault tracing in electronic equipment using apparatus designated in 2.9 (systematic methods to be stressed).	1.1	Voorsorg in verband met elektriese werk.
2.9	General knowledge of apparatus used on electronic equipment, such as oscilloscope, sine-, square- and complex-wave and pulse generators, bridges, electronic voltmeters, valve testers, transistor checkers and geiger counters.	1.2	Voorsorg teen skadelike en vlambare gasse.
2.10	Operation of A.C. and D.C. rotary and magnetic amplifiers.	1.3	Voorsorg in verband met handgereedskap.
2.11	Use of transducers in the measurement of time, strain, thickness, pressure, number, etc.	1.4	Voorsorg by hantering van gesmelte en warm metaal.
2.12	Elementary telemetering of electrical and physical quantities.	1.5	Voorsorg by hantering van vloeistowwe en gasse onder druk.
2.13	Elementary work and knowledge of use of radiation detectors, Geiger-Müller tubes and radiation sources.	1.6	Afskerming van masjinerie om ongelukke te voorkom.
2.14	Elementary work on and knowledge of the following: Relay and switching circuits, photo-electric devices, electromagnetic devices, oscillator devices, solid state switching devices including monostable and bistable devices, flip-flop counter circuits, and knowledge of synchro- and servo-mechanisms.	2	Afmerkwerk van tekenings af deur presisie-instrumente te gebruik, bv. nonius, hoogtemeter, krasblok, verdeelpassers, duimstokke, vlak- en hoekplate, V-blokke.
2.15	Functional knowledge of direct read-out counters and meters, digital voltmeters and simple memory devices.	3	Paswerk: Meetgereedskap; toleransies; passings; spelings; afwerking; vassit- en sluittoestelle; meganiese eienskappe van yster- en nie-ysterhoudende metale gewoonlik gebruik; hittebehandeling van metale (elementêr); meganiese en elektriese eienskappe van isoleermateriaal; kennis van handgereedskap in die bedryf gebruik bv. vyle, hamers, beitels, ystersae, sleutels, tange, skrapers, skroewedraaiers, skroef- en moerdraadsnygereedskap en spelingspasgate; spesifikasies vir alle soorte draad in die ambag gebruik.
2.16	Knowledge of recording of signals (data) by magnetic tape.	3.1	Presiese werkstukke met die hand maak vir gebruik in meganiese en elektriese toestelle deur middel van vyl, kap, saag, skroef- en moerdraad sny, skraap, ruim en boor, met gebruikmaking van:
2.17	Preparation of printed circuits and methods of manufacture.	3.1.1	Ysterhoudende metale;
2.18	Elementary use of binary coding systems.	3.1.2	nie-ysterhoudende metale; en
2.19	Use of magnetic, capacitative and inductive proximity devices.	3.1.3	elektriese isoleermateriaal.
2.20	Pulse oscillators.	3.2	Bore slyp: Bore met die hand slyp. Snynelheide en snyhoeke vir die verskillende materiale wat in die ambag gebruik word.
2.21	R.F. heating equipment.	4	Soldeerwerk: Soorte en eienskappe van soldeer- en smeltmiddels gewoonlik in die ambag gebruik.
3	Revision and independent work.		

Logboek Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
	(17) <i>Trade: ELECTROPLATING (9)</i>		
1.1	Safety precautions applicable to the trade.	4.1	Sagsoldeerwerk; verhitting.
1.2	Equipment in polishing plant, e.g. spindles, mops, polishing compositions, exhaust systems and dust extraction.	4.2	Silwersoldeerwerk; verhitting.
1.3	Polishing sequences of different materials and surfaces including finishing of deposits, scratch-brushing and polishing.	4.3	Hardsoldeerwerk; verhitting.
1.3	Simple plating with copper, nickel and chrome, including the practical work in polishing and preparation of articles prior to and after plating.	5	Sweis: Elementêre gassweis. Hoe gassweispype, gasse en reëlaars werk.
1.5	Acid, alkaline and emulsion cleaning; degreasing and descaling methods; cyanide and acid dipping and proper rinsing.	5.1	Termopare sweis.
1.6	Design of work holders, jigs and frames; wiring up jiggings.	6	Kringlope: Monteer en konnekteer van resistors, kapasitors, kontakters, relê, termopare, spoel, halfgeleierdiodes, transistors, elektroniese buise, WS- en GS-motore, stroom- en potensiaaltransformators in instrumentwerk gebruik. Maak van en werk met kringkomponente, bv. resistors, kapasitors, spoel, relê, konduktors, termopare, halfgeleierdiodes, transistors, elektroniese buise, stroom- en potensiaaltransformators, elementêre WS- en GS-laespanningstelsels; soorte en werking van een- en meerfasige GS- en WS-motore.
1.7	Simple types of electrical equipment and the uses thereof.	7	Meet van: Stroom, spanning, weerstand, kapasitansie, induktansie en impedansie. Maak van en werk met: WS/GS-ammeters, WS/GS-voltmeters, weerstands-, induktansie-, kapasitansie- en impedansiebrûe, potensiometers en galvanometers.
2.1	Properties and maintenance of solutions.	8	Instrumentversorging: Uitmekaarhaal, inmekaarsit, opstelling, stel en kalibrering van meganiese, elektriese, elektroniese, lugdruk- en hidrouliese instrumente en primêre elemente wat gebruik word vir aanwys, registreer en beheer van: Vloei, druk, gewig, hoogte, spoed/tyd, ontleding en temperatuur. Maak van en werk met: Meganiese, elektriese, elektroniese, lugdruk- en hidrouliese registreer-, aanwys- en beheer-instrumente en die verskillende primêre elemente vir: Vloei, druk, gewig, hoogte, spoed/tyd, ontleding en temperatuur.
2.2	Volumetric analysis applied to solutions; calculation of areas, weight and thickness of metal deposited.	9	Kalibrering: Drukmeters en manometers.
2.3	Determination of temperatures, density and pH of simple methods.	10	Instandhouding van instrumentinstallasies: Opspoor van foute in: Beheer-, alarm- en telemeterstelsels, servo-meganismes, elektriese, elektroniese, hidrouliese, lugdruk- en meganiese instrumente. Herstel of vervanging van defekte of geslyte onderdele, bybehore of instrumente. Herkalibrering van instrumente.
2.4	Methods of control of plating solutions including thickness testing and plating to specification.	10.1	Funksionele instandhouding van instrumentinstallasies, registreermeganismes en primêre elemente; nagaan van datakaarte en vervanging as dit nodig is.
2.5	Rectification of faulty solutions.	11	Installering van instrumentstelsels.
2.6	Knowledge of deposits and impurities and contaminated solutions.		
2.7	Plating of different base metals including high speed and bright plating and correct sequence of plating.		
2.8	Alloy plating and anodising.		
2.9	Trouble shooting.		
2.10	Chemical finishes; dyeing including dyeing of aluminium and its alloys; bronzing and use of lacquers.		
2.11	Advanced production polishing.		
2.12	Treatment of plating shop effluents.		
3.1	Elementary knowledge of factory costing and quality control.		
3.2	Revision and independent work.		
	(18) <i>Trade: FITTING AND TURNING (23)</i>		(17) <i>Ambag: KOPERSMIDSWERK (7)</i>
1.1	Safety precautions applicable to the trade.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
1.2	Use and care of hand tools.	1.2	Versorging en gebruik van gereedskap.
1.3	Drilling (hand and machine).	1.3	Eenvoudige handewerk.
1.4	Chipping, filing, sawing, scraping, reaming, tapping and screwing.	1.4	Lees van tekenings.
1.5	Reading of drawings and the application thereof.	2.1	Algemene opleiding in handewerk met nie-ysterhoudende metale.
1.6	Care and use of marking off and measuring instruments.	2.2	Gebruik van meganiese en/of kraggereedskap.
1.7	Care and use of cutting and forming tools.	2.3	Maak van pype en toebehore.
1.8	Grinding of drills and cutting tools.	2.4	Buig van pype.
1.9	Simple centre lathe work.	2.5	Vorm deur met hamer op aambeeld te slaan.
1.10	The correct use of feeds and speeds for different materials and operations.	2.6	Sny-, rol- en buigwerk.
2.1	Fitting of components.	2.7	Blok opvolg van uithol volgens tekenings of houtpatrone.
2.2	Making of parts to drawings.	2.8	Maak van patrone.
2.3	General fitting practice including assembly.	2.9	Soldeer en sweissoldeer.
2.4	Repair and maintenance of machinery and equipment.	3	Hersiening en onafhanklike werk.
2.5	Advanced centre lathe work including screw cutting.		
3	Revision and independent work.		
	(19) <i>Trade: FITTING (INCLUDING MACHINING) (24)</i>		(18) <i>Ambag: LOODGIETERSWERK (28)</i>
1.1	Safety precautions applicable to the trade.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
1.2	Use and care of hand tools.	1.2	Versorging en gebruik van gereedskap.
1.3	Drilling (hand and machine).	1.3	Gebruik van masjiene en materiaal.
1.4	Chipping, filing, sawing, scraping, reaming, tapping and screwing.	1.4	Elementêre plaatmetaalwerk.
1.5	Reading of drawings and application thereof.	1.5	Gebruik van pype, toebehore, wasters en pakkings.
1.6	Care and use of marking off and measuring instruments.	1.6	Uitsny van eenvoudige patrone.
1.7	Care and use of cutting and forming tools.	1.7	Pype afsny en skroefdraad daaraan sny.
1.8	Grinding of drills and cutting tools.	1.8	Dakgeute en geutpype maak.
1.9	Simple centre lathe work.	1.9	Van planne af werk.
		1.10	Soldeer, vertin en gebruik van smeltmiddels.
		1.11	Klinkwerk.
		1.12	Tegniese terme.
		2.1	Sny, skroefdraad sny, las en lê van waterpype.
		2.2	Pas en vassit van afsluiters, kleppe en uitsitvoeë.

Logbook Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
1.10	The correct use of feeds and speeds for different materials and operations.	2.3	Installering van afval- en uitlaattype, sperders en ontlugtype.
2.1	Fitting of components.	2.4	Installering van warmwaterstelsels.
2.2	Making of parts to drawings.	2.5	Uitlê van rioolstelsels.
2.3	General fitting practice including assembly.	2.6	Werk met gietystertype.
2.4	Repair and maintenance of machinery and equipment.	2.7	Lees van planne en spesifikasies.
2.5	Operation of shaping machines.	2.8	Praktiese toepassing van munisipale regulasies.
2.6	Operation of slotting machines.	3	Hersiening en onafhanklike werk.
3	Revision and independent work.		
	(20)		(19)
	Trade: INSTRUMENT MECHANICIAN: INDUSTRIAL INSTRUMENTATION AND PROCESS CONTROL (16)		Ambag: MESSELWERK (VUURVASTE STENE) (5)
1	Safety: Drill in safe working habit throughout apprenticeship.	1	Veiligheid: Gedurige onderrig in veilige werkgewoontes dwarsdeur leertyd.
1.1	Precautions related to electrical work.	1.1	Voorsorg in verband met handgereedskap in die bedryf.
1.2	Precautions related to noxious and flammable gases.	1.2	Voorsorg teen skadelike en vlambare gasse.
1.3	Precautions related to use of hand tools.	1.3	Voorsorg teen stof.
1.4	Precautions related to handling of molten and hot metals.	1.4	Voorsorg in verband met die gebruik van houters met vuurvaste stene uitgemessel, vir die hantering van gesmelte metaal bedoel.
1.5	Precautions related to handling liquids and gases under pressure.	1.5	Voorsorg in verband met steiers.
1.6	Accident preventive protection of machinery.	1.6	Voorsorg in verband met die gebruik van steenkapmasjiene.
1.7	Precautions when working machine tools.	2	Messelwerk: Sorg vir en gebruik van waterpasse, winkelhake, troffels, reie, meetbande, duimstokke, bouerslyne, kamhamers en steenbeitels.
2	Marking off from drawings using precision marking-off tools, e.g. vernier height gauge, surface gauge, dividers, rules, surface and angle plates, V-blocks.	2.1	Nie-vuurvaste messelwerk: Materiaal wat gebruik word en metodes toegepas om nie-vuurvaste stene te maak.
3	Fitting: Measuring tools, tolerances, fits, clearances, finishes, fixing and locking devices, mechanical properties of ferrous and non-ferrous metals commonly used in the trade, heat treatment of metals (elementary), mechanical and electrical properties of electrical insulating materials, knowledge of hand tools used in the trade e.g. files, hammers, chisels, hacksaws, spanners, pliers, scrapers, screwdrivers, thread cutting tools, tapping and clearance size holes, specifications for all types of threads commonly used in the trade.	2.1.1	Soorte, groottes en soortname van stene in die boubedryf gebruik.
3.1	Handmaking of accurate work pieces for electrical and mechanical applications employing the techniques of filing, chipping, sawing, screwing and tapping, scraping, reaming and drilling using:	2.1.2	Verskillende soorte verbande in bouwerk.
3.1.1	Ferrous metals.	2.1.3	Binders: Eienskappe van die verskillende sement- en kalkbinders in die boubedryf.
3.1.2	non-ferrous metals; and	2.1.4	Dagha: Verhoudings vir sand en kalk en sand, kalk en sementmengsels vir bou- en pleisterwerk.
3.1.3	electrical insulating materials.	2.1.4.1	Soorte sand vir bouwerk.
3.2	Drill sharpening: Handsharpening of drills. Cutting speeds and cutting angles for the different materials used in the trade.	2.1.5	Soorte afwerking van mure bv. sierwerk met verskillende soorte voë en die verskillende pleisterafwerkings. Bou van voormure van verskillende diktes (ook hol mure) met die verskillende verbande, en mure afpleister.
4	Soldering: Types and properties of solders and fluxes commonly used in the trade.	2.1.5.1	Inbou van venster- en deuropenings, in alle diktes mure.
4.1	Soft soldering; heating.	2.1.6	Hoeke ophaal.
4.2	Silver soldering; heating.	2.1.7	Mure pleister.
4.3	Brazing; heating.	2.1.8	Bepaal peilhoogtes; 3:4:5-reël vir afmerk van 90°-hoeke; haaksheid bepaal deur hoeklyne te meet. Fondamente vir geboue van boutekenings afsteek.
5	Welding: Elementary gas welding. Principle of gas welding torches, gases and regulators.	2.2	Vuurvaste messelwerk: Redes vir gebruik van vuurvaste materiaal in nywerheidsprosesse.
5.1	Thermo-couple welding.	2.2.1	Soorte vuurvaste materiaal gewoonlik gebruik.
6	Circuitry: Mounting and connection of resistors, capacitors, contactors, relays, thermo-couples, coils, semi-conductor diodes, transistors, electronic tubes, AC and DC motors, current and potential transformers used in instrument work. Construction and operation of circuit components, e.g. resistors, capacitors, coils, relays, contactors, thermo-couples, semi-conductor diodes, transistors, electronic tubes, current and potential transformers; elementary treatment of AC and DC low tension power supply systems; types and operation of DC and AC single and multiphase motors.	2.2.2	Metodes toegepas en materiaal wat gebruik word vir maak van vuurvaste stene.
		2.2.3	Vuurvaste soorte dagha en sement.
		2.2.4	Probleme met uitsetting en inkrimping van vuurvaste steenwerk.
		2.2.5	Uitsitvoë. Bou van mure van verskillende diktes, met verskillende verbande.
		2.2.5.1	Bou van smeltoondkoepels.
		2.2.5.2	Metodes om boë te bou; verskillende ontwerpe vir boë in oonde en gange. Bou van verskillende soorte boë vir oonde en gange.
		2.2.5.3	Vuurvaste stene wat vir spesiale doeleindes in oonde en gange nodig is, noukeurig met die hand kap en/of met 'n masjiën sny.
7	Measurement of: Current, voltage, resistance, capacitance, inductance and impedance. Operation and construction of: AC—DC ammeters, AC—DC voltmeters, resistance, inductance, capacitance and impedance bridges, potentiometers and galvanometers.	3	Betonwerk: Eienskappe van beton; gebruik van beton in bou- en strukturele werk; materiaal om beton van te meng; verhoudings waarin sand, sement en gruis gemeng word vir verskillende vereistes; korrekte mengmetodes; die doel van betonwapening en korrekte plasing daarvan; maak en oprig van betonbekisting en die materiaal wat daarvoor gebruik word; belangrikheid van die toepassing van vibreer- of vasstamp tegnieke terwyl beton gegiet word. Beton vir fondamente, vloere- en bouwerk giet.
		3.1	Deklaag van sementvloere aansit.
8	Instrument maintenance: Dismantling, assembling, alignment, adjustment and calibration of mechanical electrical, electronic, pneumatic and hydraulic instruments and primary elements used for indicating, recording and control of flow, pressure, weight, level, speed/time, analysis and temperature. Construction	4	Uitdroogproses van houters wat met vuurvaste stene uitgemessel is voordat dit in gebruik geneem word. Herstel van smelt- en drooggoonde, gange, houters en type wat met vuurvaste stene uitgemessel is.
		5	Die uitmessel van oonde, houters en ander vuurvaste steenbouwerke volgens tekenings.
		6	Oprig en opknop van geboue.

Logbook Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
	and operating principles of mechanical, electrical, electronic, pneumatic and hydraulic recording, indicating and control instruments and the various primary elements for flow, pressure, weight, level, speed/time, analysis and temperature.		(20)
9	Calibrating: Pressure gauges and manometers.		Ambag: MEULMAKER (ELEKTRO-MEGANIES) (22)
10	Maintenance of instrument installations: Diagnosing of faults in control, alarm and telemetering systems, servo-mechanisms, electric, electronic, hydraulic, pneumatic and mechanical instruments. Repairing or replacing of faulty or worn components, accessories or instruments; recalibrating of instruments.	1	Veiligheid: Gedurende onderrig in veilige werkgewoontes dwarsdeur leertyd.
10.1	Functional maintenance of instrument installations, service recording mechanisms, primary elements; checking and renewing of data charts.	1.1	Voorsorg in verband met elektriese werk.
11	Installation of instrument systems.	1.2	Voorsorg teen skadelike en vlambare gasse.
	(21)	1.3	Voorsorg in verband met handgereedskap.
	Trade: LIFT MECHANIC (15)	1.4	Voorsorg by hantering van gesmelte en warm metaal.
1.1	Safety precautions applicable to the trade.	1.5	Voorsorg by hantering van vloeistowwe en gasse onder druk.
1.2	Knowledge, care and uses of various hand tools.	1.6	Afskerming van masjiene om ongelukke te voorkom.
1.3	Care and use of workshop and portable equipment.	1.7	Voorsorg wanneer met masjiengereedskap gewerk word.
1.4	Chasing of walls.	1.8	Voorsorg wanneer onderhoudswerk aan lopende masjinerie gedoen word.
1.5	Installation of conduit and fitting.	2	Afmerkwerk: Van tekenings af, met gebruik van presisie-afmerkgereedskap bv. noniushoogtemeters, passers, duimstokke, gradeboë, vlak- en hoekplate, V-blokke.
1.6	Wiring of simple circuits.	3	Paswerk: Meetgereedskap; toleransies; passings; spelings; afwerking; vasmaak- en sluitgerei; meganiese eienskappe van yster- en nie-ysterhoudende metale gewoonlik in pas- en elektriese werk gebruik. Hitte-behandeling van metale (elementêr). Meganiese en elektriese eienskappe van elektriese isoleermateriaal. Kennis van handgereedskap in die ambag gebruik bv. vyl, hamers, beitels, ystersae, sleutels, tange, skrapers, skroewendraaiers, draadsnygereedskap. Spesifikasies vir alle soorte draad in die ambag gebruik. Moerdraad- en spelingspasgate.
1.7	Methods of earthing and soldering.	3.1	Presiese werkstukke met die hand maak vir gebruik in elektriese en meganiese werk deur middel van vyl, kap, saag, skroef- en moerdraad sny, skraap, ruim en boor, met gebruikmaking van:
1.8	Wiring and maintenance of bells and indicators.	3.1.1	Ysterhoudende metale;
1.9	Methods of single and two-way switching.	3.1.2	nie-ysterhoudende metale; en
1.10	Basic fitting including filing and hacksawing.	3.1.3	elektriese isoleermateriaal.
1.11	Screw-cutting with stocks and dies and tapping.	3.2	Bore slyp: Bore met die hand slyp. Snynsnelhede en snyhoeke vir verskillende materiale wat in die ambag gebruik word.
1.12	Elementary marking off and drilling.	3.3	Laers: Keuse van soort vir verskillende gebruike; wrywingvry materiaal vir glylaers; soorte wrywingvry laers; versorging en instandhouding van laers.
1.13	Elementary setting out of lift equipment from drawings provided for erection.	3.3.1	Pas van busse en glylaers.
2.1	Requirements of elevator motors and relative power consumption.	3.3.2	Pas van wrywingvry laers. Belangrikheid van passing.
2.2	Starting, reversing and speed variation of AC and DC motors.	3.4	Masjieninstallering: Masjiene waterpas opstel en rig; as- en motorkoppeling; band-, rat- en kettingaandrywings.
2.3	Variable voltage or multi-voltage systems of control of elevator motors.	3.5	Koppelaars en remme stel: Korrekte spelings vir koppelaars en remme. Soorte koppelaars en remme wat in nywerheidsmasjinerie gebruik word. Metodes om koppelaar- en remtoestelle te aktiveer. Materiale vir koppelaarvlakke en remvoerings.
2.4	Dynamic braking of motors.	4	Smering: Beginsels van smering; smeermiddels vir verskillende doeleindes in die nywerheid; metodes om smeermiddels toe te dien.
2.5	Reverse phase relays.	5	Soldeerwerk: Soorte, gebruik en eienskappe van soldeer-sels en smeltmiddels gewoonlik in die ambag gebruik; soldeer- en verhittingstegnieke.
2.6	Use and connections of metal rectifiers.	5.1	Sagsoldeer van alle metale in die ambag gebruik. Sorg vir en gebruik van toerusting.
2.7	Use and connections of motor generator sets.	5.2	Silwersoldeerwerk: Sorg vir en gebruik van toerusting.
2.8	Use and connections of overload and circuit breaker protection.	5.3	Sweissoldeerwerk: Sorg vir en gebruik van toerusting.
2.9	Use and connections of single and polyphase transformers.	6	Elektriese kabellawerk: Spesifikasies van elektriese en meganiese vereistes vir geleierlasse; materiale vir vervaardiging van geïsoleerde enkel- en meerkernkabels; toets van kabelinstallasies en lasse.
2.10	Tubing and wiring of all common elevator circuits.	6.1	Las van laespanningskabels: Veegsoldeer van hulse en inleidoppe vir deurloop-, aansluit- en entkaste.
2.11	Wiring of control panels.	6.2	Las van soliede en stringgeleiers.
2.12	Starting up, testing and adjusting lift equipment.	7	Elektriese toestelle: Montering, bedrading en konnektering in verskillende kombinasies van: Weerstande, kapasitors, relés, kontakters, spoel, transistors, diodes, elektroniese buise, stroom- en potensiaaltransformators, gelykrygers volgens diagramspesifikasies om funksionele eenhede te vorm. Vervaardigings- en werkverrigtingseienskappe van weerstande, kapasitors, spoel, halfgeleiers, elektroniese buise, relés, kontakters, stroom- en potensiaaltransformators en gelykrygers.
2.13	Use of all types of electrical measuring equipment including megger and bridge megger.	8	Anker- en spoelwikkeling: Wikkels van spoel vir kontakters en relés; vormwikkeling van spoel vir motorherwikkeling; spoelvormers maak; klein ankers en statore wikkels. Magnetiese kringe; magnetiese materiale; magnetisme as 'n medium om van elektriese krag gebruik te maak; ampêrewindings.
2.14	Fault finding on maintenance work.		
2.15	Reading of all straight line and regular diagrams.		
2.16	Erection of safe scaffolding.		
2.17	Setting out of all lift equipment.		
2.18	Erection and plumbing of guide rails.		
2.19	Erection and fitting of hatchway entrances, doors and locking gear.		
2.20	Building of cars including frames.		
2.21	Uses of safety gear, door operators and control devices.		
2.22	Erection of all types of counter weights and hoistway buffers.		
2.23	Laying down of all machines from equipment including machine beams, machines, controllers, selectors and governor gear.		
2.24	Use of rope pulley, chain tackles, winches and the safe handling of all heavy material.		
2.25	Uses of various roping arrangements used with elevators.		
2.26	Fitting and socketing of wire ropes.		
2.27	Uses of grooving used with driving and other sheaves.		
2.28	Inspection of ropes to assess deterioration and probable remaining safe life.		
2.29	Testing of safety gear and adjustment of correct overbalance.		
2.30	Repair of elevator equipment including remounting of Babbitt bearings.		
2.31	Relining of brakes.		
2.32	Fitting of keys.		
2.33	Adjustment of thrust bearings.		
2.34	Aligning of worn gears.		
3	Revision and independent work.		

Logboek Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
	(22)		
	<i>Trade: MILLWRIGHT (ELECTRO-MECHANICIAN) (20)</i>		
1	Safety: Drill in safe working habit throughout apprenticeship.	9	Kringe: Maak en gebruikmaking van skematiese en bedradingsdiagramme; defekte opspoor in elektriese aandrywings- en beheertoerusting, met gebruikmaking van toetsklokkies, spanningswysers, kontinuïteitstoetsers, veeldoelstoetsers; WS- en GS-motore konnekteer. Toetstegnieke: Vertolking van resultate in toetse verkry met ammeters, voltmeters (met uitbreiding van meetbestek van WS- en GS-voltammeters deur sjunt- en stroomtransformatore te gebruik), ohmmeters, toetsklokkies, kontinuïteitstoetsers. Eienskappe van elektriese aandrywings en toerusting; WS en GS wat gewoonlik vir swaar nywerheidsmasjinerie en hystoestelle gebruik word.
1.1	Precautions related to electrical work.	10	Onderhoud van aandrywings- en beheertoestelle.
1.2	Precautions related to noxious and flammable gases.	11	Praktyke in onderhoudswerkwinkels (elektries).
1.3	Precautions related to use of hand tools.	12	Oprigting en installering van aandrywings- en beheertoestelle.
1.4	Precautions related to handling of molten and hot metals.	13	Onderhoud van installasies en masjinerie.
1.5	Precautions related to handling liquids and gases under pressure.	14	Praktyke in onderhoudswerkwinkel (meganies).
1.6	Accident preventive protection of machinery.	15	Oprigting van installasies en masjinerie.
1.7	Precautions when working machine tools.	Let wel:	Vakleerlinge wat besondere aanleg aan die dag lê, kan ondervinding in tekenkantoor opdoen onder simbole 10, 11 of 12.
1.8	Precautions when doing maintenance work on mobile machinery.		
2	Marking off: From drawings, using precision marking-off tools e.g. vernier height gauges, dividers, rules, protractors, surface and angle plates, V-blocks.		(21)
3	Fitting: Measuring tools; tolerances; fits; clearances; finishes; fixing and locking devices; mechanical properties of ferrous and non-ferrous metals commonly used in fitting and electrical work; heat treatment of metals (elementary); mechanical and electrical properties of electrical insulating materials; knowledge of hand tools used in the trade e.g. files, hammers, chisels, hacksaws, spanners, pliers, scrapers, screwdrivers, thread cutting tools; specifications for all types of threads commonly used in the trade; tapping and clearance holes.		<i>Ambag: MODELVERVAARDIGING (25)</i>
3.1	Handmaking of accurate workpieces for electrical and mechanical use employing the techniques of filing, chipping, sawing, screwing and tapping, scraping, reaming and drilling using:	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
3.1.1	Ferrous metals;	1.2	Gebruik en onderhoud van gereedskap.
3.1.2	non-ferrous metals; and	1.3	Gebruik van verskillende soorte timmerhout.
3.1.3	electrical insulating materials.	1.4	Gebreke in hout.
3.2	Drill sharpening: Hand sharpening of drills. Cutting speeds and cutting angles for different materials used in the trade.	1.5	Alle soorte lasse en hulle gebruike.
3.3	Bearings: Choice of type for various applications; anti-friction materials for plain bearings; types of anti-friction bearings; care and maintenance of bearings.	1.6	Lym, vasspyker en vasskroef.
3.3.1	Fitting of bushes and plain bearings.	1.7	Tappenwerk.
3.3.2	Fitting of anti-friction bearings. Importance of fit.	1.8	Vernis—patrone en kernkaste.
3.4	Machine installation: Levelling and lining up of machines, shaft and motor couplings, belt, gear and chain drives.	1.9	Afwerk van metaalpatrone.
3.5	Clutch and brake adjustment: Setting correct clearances for clutch and brake assemblies. Types of clutches and brakes used for industrial machines. Methods of actuating clutch and brake devices. Materials for clutch and brake facings.	1.10	Sny en maak van gietregerstawe.
4	Lubrication: Principles of lubrication; lubricants for different industrial applications; methods of applying lubricants.	1.11	Met skuurpapier skuur.
5	Soldering: Types, application and properties of solders and fluxes commonly used in the trade; soldering and heating techniques.	1.12	Was en leerstroke aanwend.
5.1	Soft soldering all metals encountered in the trade. Care and use of equipment.	1.13	Tekenings lees.
5.2	Silver soldering: Care and use of equipment.	2.1	Gebruik van houtwerkmasjiene.
5.3	Brazing: Care and use of equipment.	2.2	Algemene houtbewerking en skrynwerk.
6	Electric cable jointing: Specifications of electrical and mechanical requirements for conductor joints; materials for manufacture of insulated cables, single and multi-core; testing of cable installations and joints.	2.3	Berekening van toelating vir inkrimping, kromtrek, masjienbewerking en die voorkoming van bars van gietstakke.
6.1	Jointing of low tension cables; wiping of sleeves and blands for through, junction and end boxes.	2.4	Werktekenings maak van monsters en bloudrukke af.
6.2	Jointing of solid and stranded conductors.	2.5	Gebruik van stawe, plaatvorming, patroonopstelling, kernkaste, kilgietvorms en in kaste insluit.
7	Electric devices: Mounting, wiring and connecting of various combinations of: Resistors, capacitors, relays, contactors, coils, transistors, diodes, electronic tubes, current and potential transformers and rectifiers to diagram specification to form functional units. Construction and operating characteristics of resistors, capacitors, coils, semi-conductor devices, electronic tubes, relays, contactors, current and potential transformers and rectifiers.	2.6	Drie maande opleiding in vormwerk.
8	Armature and coil winding: Winding of coils for contactors and relays; former-winding of coils for motor rewinding; making coil-formers; winding small armatures and stators; magnetic circuits; magnetic	2.7	Herstel en onderhoud van patrone en kernkaste.
		2.8	Beraming.
		3	Hersiening en onafhanklike werk.
			(22)
			<i>Ambag: MOTORWERKTUIGKUNDIGE (23)</i>
		1.1	Veiligheidsmaatreëls van toepassing op die ambag.
		1.2	Versorging van voertuie.
		1.3	Veilige bestuurgewoontes.
		1.4	Kennis, versorging en gebruik van gereedskap.
		1.5	Boorwerk; moerdraad sny; skroefdraad sny en ruim.
		1.6	Gebruik van meetinstrumente met inbegrip van lemmate en mikrometers.
		1.7	Gebruik van hidrouliese domkragte en bokke.
		1.8	Smeer van voertuie.
		1.9	Generatorlaaistelsels.
		1.10	Ontkoling van enjins en slyp van kleppe.
		1.11	Nagaan en ondersoek van onderdele.
		1.12	Uitmekaarhaal en inmeekaarsit van enjins, ratkaste en transmissiestelsels.
		2.1	Opknapping en insit van enjinonderdele.
		2.2	Instel van kleppe en vonkreëling.
		2.3	Kennis van koelstelsels.
		2.4	Metodes om enjins in te stel.
		2.5	Opknapping, insit en inmeekaarsit van ratkaste, dryfasse, vooras-samestelle, transmissiestelsels, remstelsels, stuurkaste en -skakelings, vering- en ontstekingstelsels.
		2.6	Stuurgeometrie.
		2.7	Foutdiagnosering en -verbetering.
		3	Hersiening en onafhanklike werk.

Logbook Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
9	materials; magnetism as a medium of utilising electric power; ampere turns. Circuitry: Making and translating of schematic and wiring diagrams; tracing of faults in electric, motive and control equipment using test bells, voltage indicators, continuity testers, multi-range testers; connecting of AC and DC motors; testing techniques; interpretation of results obtained in tests with ammeters, voltmeters (extending the ranges of AC and DC voltmeters using shunts and current transformers), ohmmeters, test bells, continuity testers; characteristics of electric drives and equipment; AC and DC commonly used for heavy industrial machinery and hoisting devices.		(23) <i>Ambag: PAS- EN DRAAIWERK (18)</i>
10	Maintenance of motive and control equipment.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
11	Maintenance workshop practice (electrical).	1.2	Gebruik en versorging van handgereedschap.
12	Erection and installation of motive and control equipment.	1.3	Boorwerk (hand en masjien).
13	Maintenance of plant and machinery.	1.4	Afbeitel, vyl, saag, skraap, ruim, moerdraad en skroefdraad sny.
14	Maintenance workshop practice (mechanical).	1.5	Lees van tekenings en gebruikmaking daarvan.
15	Erection of plant and machinery.	1.6	Versorging en gebruik van afmerk- en meetinstrumente.
		1.7	Versorging en gebruik van sny- en vormgereedschap.
		1.8	Slyp van bore en snygereedschap.
		1.9	Eenvoudige werk op senterdraaibank.
		1.10	Korrekte gebruik van toevoer en spoed vir verskillende materiale en werksaamhede.
		2.1	Pas van onderdele.
		2.2	Maak van onderdele volgens tekenings.
		2.3	Algemene paswerkpraktijk met inbegrip van montering.
		2.4	Herstel en onderhoud van masjinerie en toerusting.
		2.5	Gevorderde werk op senterdraaibank met inbegrip van draadsnywerk.
Note:	Apprentices showing special aptitude may receive Drawing Office experience under symbols 10, 11 or 12.	3	Hersiening en onafhanklike werk.
	(23) <i>Trade: MOTOR MECHANIC (22)</i>		(24) <i>Ambag: PASWERK (MET INBEGRIIP VAN MASJIEWERK) (19)</i>
1.1	Safety precautions applicable to the trade.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
1.2	Care of vehicles.	1.2	Gebruik en versorging van handgereedschap.
1.3	Safe driving habits.	1.3	Boorwerk (hand en masjien).
1.4	Knowledge, care and use of tools.	1.4	Afbeitel, vyl, saag, skraap, ruim, moerdraad en skroefdraad sny.
1.5	Drilling, tapping, screwing and reaming.	1.5	Lees van tekenings en gebruikmaking daarvan.
1.6	Use of measuring instruments including feeler gauges and micrometers.	1.6	Versorging en gebruik van afmerk- en meetinstrumente.
1.7	Use of hydraulic jacks and trestles.	1.7	Versorging en gebruik van sny- en vormgereedschap.
1.8	Lubrication of vehicles.	1.8	Slyp van bore en snygereedschap.
1.9	Generator charging systems.	1.9	Eenvoudige werk op senterdraaibank.
1.10	Decarbonising engines and grinding of valves.	1.10	Korrekte gebruik van toevoer en spoed vir verskillende materiale en werksaamhede.
1.11	Checking and inspection of components.	2.1	Pas van onderdele.
1.12	Dismantling and assembly of engines, gear boxes and transmissions.	2.2	Maak van onderdele volgens tekenings.
2.1	Overhauling and fitting of engine components.	2.3	Algemene paswerkpraktijk met inbegrip van montering.
2.2	Setting of valve and ignition timing.	2.4	Herstel en onderhoud van masjinerie en toerusting.
2.3	Knowledge of cooling systems.	2.5	Werk met sterkarmskaafmasjiene.
2.4	Methods of engine tuning.	2.6	Werk met gleufmasjiene.
2.5	Overhauling, fitting and assembly of gear boxes, propeller shafts, front axle assemblies, transmissions, braking systems, steering boxes and linkages, suspension and ignition systems.	3	Hersiening en onafhanklike werk.
2.6	Steering geometry.		(25) <i>Ambag: PLAATMETAALWERK (35)</i>
2.7	Fault diagnosis and remedy.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
3	Revision and independent work.	1.2	Versorging en gebruik van gereedschap en masjiene.
	(24) <i>Trade: MOULDING (39)</i>	1.3	Soldeerwerk en gebruik van smeltmiddels.
1.1	Safety precautions applicable to the trade.	1.4	Klinkwerk.
1.2	Making and placing of cores.	1.5	Afmerk van eenvoudige werk.
1.3	Venting.	1.6	Maak van eenvoudige plaatmetaaldele.
1.4	Application of refractory facings.	1.7	Lees van tekenings.
1.5	Methods of drying.	2.1	Afmerk, ontwikkeling en maak van meer gevorderde plaatmetaaldele.
1.6	Care of core boxes.	2.2	Platpatroonwerk.
1.7	Use of tools, appliances and materials.	2.3	Maak van plaatmetaaldele van tekenings af.
1.8	Mixing of core sands.	2.4	Bereiding van staal- en allooiplate vir roeswerende behandeling.
1.9	Care of patterns.	2.5	Versorging en gebruik van sny-, sweissoldeer- en sweis-toerusting.
1.10	Shaping of core reinforcements.	2.6	Rek en krimp van materiaal tydens verwerking.
1.11	Making of moulds.	2.7	Gebruik van kragmasjinerie.
1.12	Coring, closing, sconcing, sealing of vents, clamping.	2.8	Maak van gesoldeerde en geklinkte samestelle.
1.13	Making of cast core irons.	3	Hersiening en onafhanklike werk.
1.14	The general principles of running and rising.		(26) <i>Ambag: PLAATWERK (26)</i>
1.15	Use of synthetic sands, including CO ₂ sands.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
2.1	Making more advanced types of moulds; cutting of joints; booking; reinforcing; coring; closing and casting.	1.2	Versorging en gebruik van gereedschap.
2.2	Advanced core making and moulding including skeleton pattern moulding.	1.3	Basiese beginsels van die ambag nl. pons, skuinsknip, afknip, met valmes afsny, boor, klink en kalfater.
		1.4	Tekenings lees.

Logbook Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
2.3	Instruction together with journeyman on the moulding and making of more advanced and intricate castings, including making of cast core irons and reinforcements.	1.5	Afmerk van tekenings en patrone af.
3.1	Revision.	1.6	Elementêre weekstaalsweiswerk.
3.2	Sand control; principles of running, rising and gating; use of chills.	1.7	Oksiasetileenvlamsnywerk.
3.3	Principles of casting defects.	2.1	Pons, skuinsknip, afknip, met valmes afsny, klink en kalfater.
3.4	Practical use of melting units.	2.2	Werk met metaalplate en profielysters $\frac{1}{16}$ " en dikker.
3.5	Temperature control.	2.3	Aanmeakaarsit van werk wat in die ambag gedoen word.
3.6	Standard practical foundry control tests in both metal and sands.	2.4	Afmerk van tekenings en patrone af.
3.7	Independent moulding and core making of the larger and more intricate moulds and cores.	2.5	Ontwikkeling van metaalplate.
4.1	Revision.	2.6	Maak van patrone.
4.2	Independent moulding and core making on the general jobbing floor including the coring, sconcing, sealing of vents, sconcing of large cores, closing of moulds, weighting and clamping of moulds.	2.7	Gevorderde lees van tekenings en die afmerk van strukturele onderdele en metaalplate daarvan af.
5	Revision and independent work with particular emphasis on the re-training in any apparent weakness.	2.8	Reguitmaak, platmaak, uitrol en buig van profielysters en metaalplate.
		2.9	Oksiasetileenvlamsnywerk.
		2.10	Hoekystersmidwerk.
		3	Hersiening en onafhanklike werk.
	(25)		(27)
	Trade: PATTERN MAKING (21)		Ambag: PLAATWERK/KETELMAKERY (27)
1.1	Safety precautions applicable to the trade.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
1.2	Use and maintenance of tools.	1.2	Versorging en gebruik van gereedschap.
1.3	Use of various types of timber.	1.3	Basiese beginsels van die ambag nl. pons, skuinsknip, afknip, met valmes afsny, boor, klink en kalfater.
1.4	Timber defects.	1.4	Lees van eenvoudige tekenings en eenvoudige afmerkw.
1.5	All types of joints and their uses.	1.5	Elementêre weekstaalsweiswerk.
1.6	Gluing, nailing and screwing.	1.6	Oksiasetileenvlamsnywerk.
1.7	Dowelling.	2.1	Werk met metaalplate en profielysters $\frac{1}{16}$ " en dikker.
1.8	Varnishing—patterns and core boxes.	2.2	Afknip, pons, skuinsknip, met valmes afsny, klink en kalfater.
1.9	Dressing of metal patterns.	2.3	Aanmeakaarsit van werk wat in die ambag gedoen word.
1.10	Cutting of and making running sticks.	2.4	Gevorderde lees van tekenings, afmerk van strukturele onderdele en metaalplate daarvan.
1.11	Sand papering.	2.5	Afmerk van tekenings en patrone af.
1.12	Application of wax and leather fillets.	2.6	Ontwikkeling van metaalplate.
1.13	Reading of drawings.	2.7	Maak van patrone.
2.1	Use of woodworking machines.	2.8	Reguitmaak, platmaak, uitrol en buig van profielysters en metaalplate.
2.2	General woodworking and joinery.	2.9	Maak en herstel van drukhouers.
2.3	Calculating allowances in contraction, warping, machining and prevention of cracking in castings.	2.10	Onderhoud en herstel van ketels en vuurkiste.
2.4	Making working drawings from sample and blue prints.	2.11	Oksiasetileensnywerk.
2.5	Use of sticks, plate moulding, skeleton work, pattern construction, core boxes, chills and boxing up.	2.12	Hoekystersmidwerk.
2.6	Three months training in moulding.	3	Hersiening en onafhanklike werk.
2.7	Repair and maintenance of patterns and core boxes.		(28)
2.8	Estimating.		Ambag: RADIOKOMMUNIKASIEDIENSMAN (29)
3	Revision and independent work.		
	(26)		
	Trade: PLATING (26)		
1.1	Safety precautions applicable to the trade.	1.1	Veiligheidsmaatreëls wat op die ambag van toepassing is.
1.2	Care and use of tools.	1.2	Gebruik en onderhoud van handgereedschap wat in die ambag gebruik word.
1.3	Basic principles of the trade viz. punching, shearing, cropping, guillotine shearing, drilling, riveting and caulking.	1.3	Gebruik van soldeerboute, smeltmiddels en soldeersels.
1.4	Reading of drawings.	1.4	Kennis van leipype, sekerings, bind- en afskermmateriale in radiokommunikasietoerusting.
1.5	Marking out from drawings and templates.	1.5	Onderdele aanmeakaarsoldeer (draad- en gedrukte kringe, met nadruk op halfgeleierwerk).
1.6	Elementary mild steel welding.	1.6	Onderhoud van kabel- en draadharnasse, skakelaars en relës.
1.7	Oxy-acetylene gas cutting.	1.7	Gebruik van eenvoudige toetstoestelle.
2.1	Punching, shearing, cropping, guillotine, riveting and caulking.	1.8	Sorg vir sekondêre selle.
2.2	The Working of metal plates and sections $\frac{1}{16}$ " and thicker.	1.9	Benaming van elektriese en radiokomponente, hul gebruik en plek in toestelle en installasies.
2.3	Assembling of work produced by the trade.	1.10	Lees en toepassing van radiokringtekenings.
2.4	Marking out from drawings and templates.	1.11	Gebruik en verstaan van handboeke oor radiokommunikasietoestelle.
2.5	Development of metal plates.	1.12	Aansit van verbindings aan antennevoerkaabls buigbare veelkernkaabls.
2.6	Template making.	2.1	Nagaan en toets van kragtoevoeruitrusting.
2.7	Advanced reading of drawings and the marking out of structural components and metal plates therefrom.	2.2	Nagaan en toets van radiomotorgenerator eenhede.
2.8	Straightening, flattening, rolling and bending of sections and metal plates.	2.3	Nagaan en toets van afstandbeheereenhede.
2.9	Oxy-acetylene gas cutting.	2.4	Nagaan en toets van bedrading, verbindings, ens. in RF-uitrusting.
2.10	Angle-iron smithing.	2.5	Gebruik van toetstoestelle, bv. seingenerators, leweringsmeters, buistoetters, universele meters, ossilloskope, meetbrûe en ander bybehorende uitrusting.
3	Revision and independent work.	2.6	Toets, onderhoud, opknapping en toets van RF-uitrusting wat vir radiokommunikasie gebruik word (met nadruk spesiaal op stelselmatige toetsmetodes).

Logbook Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
	(27) <i>Trade: PLATING/BOILERMAKING (27)</i>	2.7	Gebruik en verstaan van toetsspesifikasiegegewens.
1.1	Safety precautions applicable to the trade.	2.8	Toets en opknapping van alle bybehorende uitrusting, met inbegrip van antennes in RF-toestelle.
1.2	Care and use of tools.	2.9	Elementêre werk aan voerstelsels (lyn-, koaksiale en golfleiersstelsels).
1.3	Basic principles of the trade viz. punching, shearing, cropping, guillotine shearing, drilling, riveting and caulking.	2.10	Verwydering, opknapping, toets en herinstallering en dienstoetsing van alle radiokommunikasietoestelle.
1.4	Reading of simple drawings and simple marking out.	2.11	Nagaan en toets van alle meettoestelle wat algemeen gebruik word.
1.5	Elementary mild steel welding.	2.12	Kennis van akkuraatheid van uitrusting in 2.11 (met nadruk op akkuraatheid van frekwensiemeting en -stelling).
1.6	Oxy-acetylene gas cutting.	3	Hersiening en onafhanklike werk.
2.1	Working of metal plates and sections $\frac{1}{8}$ " and thicker.		
2.2	Cropping, punching, shearing, guillotine shearing, riveting, caulking.		(29) <i>Ambag: SKAALPASWERK (34)</i>
2.3	Assembling of work produced by the trade.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
2.4	Advanced reading of drawings; marking out structural components and metal plates therefrom.	1.2	Gebruik van hand- en presisiegereedskap.
2.5	Marking out from drawings and templates.	1.3	Afbeitel, vyl, saag, skraap, boor, ruim, moerdraad en skroefdraad sny.
2.6	Development of metal plates.	1.4	Versorging en gebruik van meetgereedskap.
2.7	Template making.	1.5	Lees van tekenings en gebruikmaking daarvan.
2.8	Straightening, flattening, rolling and bending of sections and metal plates.	1.6	Kennis van fisiese eienskappe van verskillende metale.
2.9	Making and repair of pressure vessels.	1.7	Herstelwerk aan eenvoudige weegmasjiene.
2.10	Maintenance and repair of boilers and fire boxes.	2.1	Algemene beginsels van alle soorte weegmasjiene en herstel daarvan.
2.11	Oxy-acetylene cutting.	2.2	Installering van weegmasjiene, weegbrûe en platformskale.
2.12	Angle-iron smithing.	2.3	Onderhoud van weegmasjiene, weegbrûe en platformskale.
3	Revision and independent work.	2.4	Herstel van weegmasjiene, weegbrûe en platformskale.
		2.5	Vorbereiding vir yk van weegmasjiene, weegbrûe en platformskale.
	(28) <i>Trade: PLUMBING (18)</i>	2.6	Ykregulasies.
1.1	Safety precautions applicable to the trade.	3	Hersiening en onafhanklike werk.
1.2	Care and use of tools.		
1.3	Use of machines and materials.		(30) <i>Ambag: STEMPELSNIJ- EN GRAVEERWERK (10)</i>
1.4	Elementary sheetmetal work.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
1.5	Use of pipes, fittings, washers and packings.	1.2	Sorg vir en gebruik van handgereedskap.
1.6	Cutting of simple patterns.	1.3	Sorg vir en gebruik van meetinstrumente, bv. vernier, dieptemeter en mikrometer.
1.7	Making and threading of pipes.	1.4	Elementêre kap-, boor-, ruim-, saag-, skraap-, skroef- en moerdraadsnywerk.
1.8	Cutting gutters and down pipes.	1.5	Bore en snybeitels slyp.
1.9	Working from plans.	1.6	Lees van tekenings en kunswerk en toepassing daarvan.
1.10	Soldering, tinning and use of fluxes.	1.7	Kennis van fisiese eienskappe van materiaal wat in die ambag gebruik word.
1.11	Riveting.	1.8	Bereiding van meesters.
1.12	Technical terms.	1.9	Elementêre modelleerwerk in klei en giet.
2.1	Cutting, threading, jointing and laying of water pipes.	1.10	Kennis van reproduksie van stempels.
2.2	Fitting and fixing of stopcocks, valves and expansion joints.	1.11	Eenvoudige lettersnywerk.
2.3	Installation of waste and outlet pipes, traps and vent pipes.	1.12	Handpompwerk en rangskikking van letters op stempels.
2.4	Installation of hot water systems.	1.13	Elementêre hittebehandeling.
2.5	Setting out of drainage systems.	2.1	Bereiding van stempels.
2.6	Cast iron pipe work.	2.2	Hand- en masjiengravering van blok-, skrif- en sierletters.
2.7	Reading of plans and specifications.	2.3	Handafwerking van metaalstempels in reliëf.
2.8	Practical application of municipal regulations.	2.4	Sketse vir klante maak. (Voorbeelde van tekenings beginnende met die teken van voorwerpe.)
3	Revision and independent work.	2.5	Presiesiewerk met handgereedskap.
	(29) <i>Trade: RADIO-COMMUNICATIONS SERVICEMAN (28)</i>	2.6	Afmerk.
1.1	Safety precautions applicable to the trade.	2.7	Bediening van masjiene wat in die ambag gebruik word.
1.2	Use and maintenance of hand tools used in the trade.	2.8	Stempels skoonmaak en poleer.
1.3	Use of soldering irons, fluxes and solders.	2.9	Modellering en bereiding van meesters.
1.4	Knowledge of conduits, fuses, bonding and screening materials in radio-communication equipment.	2.10	Letter- en manuskripwerk (suiwer).
1.5	Soldering components (wiring and printed circuits with emphasis on semi-conductor work).	2.11	Elementêre handelskuns insluitende opmaaksketse, ontwerp wat op die ambag van toepassing is, en letterwerk en die ontwerp van handelsmerke en wapens.
1.6	Maintenance of cable and wire harnesses, switches and relays.	2.12	Figuurtekening, ook portrette.
1.7	Use of simple test equipment.	3	Hersiening en onafhanklike werk.
1.8	Care of secondary cells.		
1.9	Nomenclature of electrical and radio components, their uses and locations in equipment and installations.		(31) <i>Ambag: STEMPELVERVAARDIGING (8)</i>
1.10	Reading and interpretation of radio-circuit drawings.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
1.11	Use and understanding of handbooks on radio-communication equipment.	1.2	Sorg vir en gebruik van handgereedskap en meetinstrumente.
1.12	Fitting of connections to aerial feeder cables and multi-core flexible cables.		
2.1	Checking and testing of power supply equipment.		
2.2	Checking and testing of radio motor-generator units.		

Logbook Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
2.3	Checking and testing of remote control units.	1.3	Bore skerpmaak.
2.4	Checking and testing of wiring, bonding etc. in R.F. equipment.	1.4	Kap, vyl, saag, skraap, boor, ruim, skroefdraad aan moere en boutes sny.
2.5	Use of test equipment viz. signal generators, output meters, tube checkers, universal meters, oscilloscopes, measuring bridges and other associated equipment.	1.5	Tekenings lees en gebruik.
2.6	Testing, maintenance, overhaul and checking of R.F. equipment used for radio communication (special emphasis to be placed on systematic method of testing).	1.6	Kennis van fisiese eienskappe van verskillende soorte materiaal.
2.7	Use and understanding of test specification data.	1.7	Sterkarmskaaf- en boormasjiene bedien.
2.8	Testing and overhaul of all associated equipment including aerials in R.F. equipment.	2.1	Bereiding van stempels, stempelontwerpe en masjien-tekening met inbegrip van onderrig in soorte perse en hulpuitrusting wat stempelontwerpe beïnvloed.
2.9	Elementary work on feeder systems (line, co-axial and wave-guide).	2.2	Bediening van gereedskapslypmasjiene, draaibanke, frees- en hand- of outomatiese kopieerstempelfrees-masjiene (met inbegrip van gebruik van verdeelkop).
2.10	Removal, overhaul, testing and reinstallation and service testing of all items of radio-communication equipment.	2.3	Hittebehandeling.
2.11	Checking and testing of all measuring equipment in general use.	2.4	Maak en herstel van patrone, meters, setmate en heg-stukke.
2.12	Knowledge of accuracy of equipment in 2.11 (emphasis to be laid on accuracy of frequency measurements and settings).	2.5	Afdrukplate uitlê.
3	Revision and independent work.	2.6	Stempels skoonmaak en/of poleer.
		2.7	Stempels vir vormgiets- en/of gietsstukke maak, ook deur middel van epoksi-harse.
		2.8	Onderrig in vormgiettegnieke, ook oppervlakverharding.
		2.9	'n Bietjie grofsmidsopleiding in vervaardiging van snelstaalbeitels en vormponse van die tipes wat vir bankwerk in afdruksinkwerk gebruik word.
		2.10	Stempelprofielafdrukke met bo- en onderrande afmerk en die nodige tapse hoeke.
		2.11	Loodstrookies afmerk om seker te maak dat komponent in alle aspekte met die nodige krimpspeeling binne toleransies is.
		3	Hersiening en onafhanklike werk.
	(30)		(32)
	Trade: REFRIGERATION MECHANIC (COMMERCIAL) (36)		Ambag: SWEISWERK (41)
1.1	Safety precautions applicable to the trade.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
1.2	Care and use of hand tools applicable to the trade.	1.2	Versorging en gebruik van gereedskap, toerusting en materiaal.
1.3	Use of simple test equipment including pressure gauges, thermometers and electric measuring instruments.	1.3	Eenvoudige oksiasetileensnywerk met die hand en masjien.
1.4	Simple repairs including adjustment of expansion valves, pressure controls and thermostatic switches.	1.4	Elektriese boogswaiswerk.
1.5	Knowledge of soldering and use of welding equipment for silver soldering.	1.5	Oksiasetileensweiswerk.
1.6	Effects of refrigerant gases and safety first precautions to be adopted.	1.6	Lees van tekenings.
1.7	Neutralising agents.	1.7	Vertolking van simbole wat by sweiswerk gebruik word.
2.1	The principles underlying refrigeration.	2.1	Gevorderde elektriese sweiswerk met inbegrip van posisionele sweiswerk.
2.2	Construction, assembling, installation, maintenance and repair of commercial refrigeration plants including the use of leak detection devices.	2.2	Gevorderde oksiasetileensweiswerk met inbegrip van posisionele sweiswerk.
2.3	Knowledge of single- and three-phase electric motors and starters as applied to refrigerator plants.	2.3	Metodes om kromtrek en bars te voorkom.
2.4	Training to requisite competency required by local authorities to enable the apprentice to connect and disconnect all electrical motors.	2.4	Tegnieke van voorverhitting, naverhitting en afkoeling.
3	Revision and independent work.	2.5	Sweisvolgorde en spanningsvermindering.
		2.6	Gebruik en bediening van gespesialiseerde sweisma-sjiene.
		2.7	Sweiswerk aan drukhouers en radiograaftegnieke.
		2.8	Argon-boogswaiswerk.
		2.9	Oksiasetileensnywerk met inbegrip van profiel-, reguit- en handsnywerk.
		3	Hersiening en onafhanklike werk.
	(31)		(33)
	Trade: RIGGING (33)		Ambag: TAKELWERK (31)
1.1	Safety precautions applicable to the trade.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
1.2	Care and use of tools and appliances.	1.2	Versorging en gebruik van gereedskap en toestelle.
1.3	Assisting on installation of machinery and plant.	1.3	Help met installering van masjinerie en installasies.
1.4	Method and procedure on repair work.	1.4	Metodes en prosedure by herstelwerk.
1.5	Splicing of ropes.	1.5	Splitsing van toue.
1.6	Knots and strength of ropes and their application.	1.6	Knope en sterkte van toue en hulle gebruike.
1.7	Stresses and strains permissible in lifting and loading with ropes and chains.	1.7	Trek- en rekspannings wat toelaatbaar is in ophang en laai met toue en kettings.
1.8	Fixing of guys and anchors.	1.8	Vassit van ankertoue en ankers.
1.9	Method of examination of ropes, slings, chains and hooks.	1.9	Metodes om toue, slingers, kettings en hake te ondersoek.
1.10	Use of tackles, slings and jacks.	1.10	Gebruik van takels, slingers en domkragte.
2.1	Erection of scaffolding, staging, tripods and poles.	2.1	Oprigting van steierwerk en platforms, driepote en pale.
2.2	Erection of derricks and sheer legs.	2.2	Oprigting van laaibome en katrolbokke.
2.3	Use of winches.	2.3	Gebruik van wenasse.
2.4	Erection and dismantling of structures and machinery.	2.4	Oprigting en sloping van bouwerk en masjinerie.
2.5	Covering of wire splicing; serving; parcelling and sizing.	2.5	Bedekking van draadsplyswerk; bekleding; smarting en seising.
2.6	Making and rigging of boatswain's chair.		
2.7	General rigging work including slinging of heavy loads.		
3	Revision and independent work.		

Logboek Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
	(32) <i>Trade: ROLL TOOL AND TEMPLATE MAKING (41)</i>		
1	Safety: Drill in safe working habits throughout apprenticeship.	2.6	Maak en oprig van bootmanstoel.
1.1	Precautions related to the use of hand tools.	2.7	Algemene takelwerk met inbegrip van die op- en af-slinger van swaar vrage.
1.2	Precautions related to working with gases under pressure.	3	Hersiening en onafhanklike werk.
1.3	Precautions related to the use of air and electric powered hand tools.		
1.4	Precautions related to noxious and flammable gases.		(34)
1.5	Precautions in using machine tools.		<i>Ambag: TELEFOONKOMMUNIKASIE-ELEKTRISIËN (36)</i>
1.6	Accident preventive protection of machinery.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
2	Marking off: From drawings using precision marking-off tools, e.g. vernier height gauges, dividers, rules, V-blocks, surface and angle plates.	1.2	Sorg vir en gebruik van gereedskap.
3	Fitting: Mechanical properties of the metals commonly used in the trade; knowledge of the hand tools used in the trade e.g. hammers, files, chisels, hacksaws, scrapers, reamers, thread-cutting tools, precision measuring tools such as vernier, calipers and micrometers; tolerances, fits, clearances, finishes, specifications for all types of threads used in the trade.	1.3	Telefoonverspreiding en opsporing van foute.
3.1	Handmaking: Working in ferrous metals making of accurate workpieces employing the techniques of filing, chipping, sawing, screwing and tapping, scraping, reaming and drilling.	1.4	Telefoon toets en foute opspoor, ook telegraafinstrumente, beide hand- en masjientipes.
3.2	Drill sharpening: Hand sharpening of drills. Cutting speeds and angles for the different metals used in the trade.	1.5	Installering, foute opspoor en opknapping.
4	Soldering: Types of solders and fluxes commonly used for hard soldering; care and safe handling of heating torches, gauges and gas cylinders; heating techniques.	1.6	Onderhoud tydens alle werkfasies.
4.1	Silver soldering.	2.1	Veiligheidsmaatreëls van toepassing op die ambag.
4.2	Brazing.	2.2	Ondervinding op luglyne, kables (ondergronds en binnenshuis) en kommunikasietoestelle.
5	Template making: Marking off from drawings; cutting out and finishing off within tolerances specified using metric and British units of measurement. Selection of correct blades for cutting different thicknesses and kinds of materials on bandsaws; materials used for making templates; cutting speeds; types of files used.	2.3	Roetinetoele, foutopsporing en stel- en verstelwerk in outomatiese sentrales.
6	Gauge making: Making of gauges used in roll turning and all rolling processes; types of gauges; materials used for making gauges.	2.4	Onderhoud van drastroombesteltoestels.
7	Shaping of formed tool bits: Marking off from drawings; cutting out and finishing to profile using gauges and templates, from tool steel and tungsten carbide stock of tool tips. Techniques for working tool steels; heat treatment of tool steels; cutting and clearance angles for different applications of roll lathe tools.	2.5	Versterkers en SF-telegraafstelsels.
7.1	Setting up tool grinding machines: Use of grinding machines to shape tool tips. Types of grinding machines used in the trade. Types of grinding wheels used in the trade. Shapes, bonds and grits for different applications.	2.6	Herwikkeling en herstel van spoel- en smoorspoel.
7.2	Dressing and shaping of grinding wheels: Care and use of different types of wheel dressers.	2.7	Hand- en outomatiese telefoonsentrales—beginsels, installering, foutopsporing, opknapping, stelwerk.
8	Making lathe tools: Making up of all types of lathe tools using pre-formed carbide and tool steel tips. Methods of affixing tips to tool stocks; correct angles for tip holders; shape of tools to ensure rigidity in use.	2.8	Netwerk- en termioniese kringe.
9	Engraving of rolls: Engraving tools and techniques used in the trade.	2.9	Transmissiestelsels—installering, toets en foute opspoor.
10	Plain turning on centre lathe. Operation and care of lathe; cutting speeds and feeds; tool angles for materials used in the trade.	2.10	Lees van skematiese en fisiese diagramme en gangbare kennis van toepassing daarvan.
11	Shaping of materials used in making tools required for roll turning. Operation and care of shaping machines; cutting tool angles.	2.11	Toets en herstel van radio-uitrusting.
12	Operation and care of milling machines (no indexing); types of cutters used for plain milling; cutting speeds and feeds. Plain milling of materials used in making tools required for roll turning.	2.12	Toets en herstel van openbare luidsprekerstelsels.
13	Making cutting tools, templates, gauges and accessories required in roll turning.	2.13	Opneem en herstel van radiotoesteltransformators.
14	Reconditioning of cutting tools and accessories used in roll turning.	2.14	Installering, onderhoud en toets van radiotoestelle.
15	Engraving distinctive product mark into new and in-service rolls.	3.1	Veiligheidsmaatreëls van toepassing op die ambag.
	(33) <i>Trade: ROLL TURNING (40)</i>	3.2	Hersiening en onafhanklike werk.
1	Safety: Drill in safe working habits throughout apprenticeship.		(35)
1.1	Precautions when using machine tools.		<i>Ambag: TIMMERWERK (6)</i>
		1.1	Veiligheidsmaatreëls van toepassing op die ambag.
		1.2	Kennis en versorging van handgereedskap en onderhoud daarvan.
		1.3	Kennis en gebruik van materiale.
		1.4	Afmeet van timmerhout.
		1.5	Tegniese terme.
		1.6	Verskillende soorte lasse.
		1.7	Maak van eenvoudige lasse.
		2.1	Kennis, versorging en onderhoud van masjiengereedskap.
		2.2	Tekeninge lees en daarvolgens afmerk.
		2.3	Pas en aanbring van skrynwerk.
		2.4	Herstelwerk aan geboue doen, asook opknapping en veranderings.
		2.5	Oprigting van alle soorte steierwerk.
		2.6	Mate neem om benodigde materiaal te bestel.
		2.7	Strukture van swaar timmerhout en onderhoud daarvan.
		3	Hersiening en onafhanklike werk.
			(36)
			<i>Ambag: VERKOELINGSWERKTUIGKUNDIGE (HANDEL) (30)</i>
		1.1	Veiligheidsmaatreëls van toepassing op die ambag.
		1.2	Sorg vir en gebruik van handgereedskap.
		1.3	Gebruik van eenvoudige toetsuitrusting soos drukmeters, termometers en elektriese meetinstrumente.
		1.4	Eenvoudige herstelwerk, soos die stel van uitsitkleppe, drukkontroles en termostaatskakelaars.
		1.5	Kennis van soldeer en gebruik van sweisuitrusting vir silwersoldeerwerk.
		1.6	Uitwerking van koelgasse en veiligheidsmaatreëls wat daarteen getref moet word.
		1.7	Neutraliseermiddels.
		2.1	Beginsels van verkoeling.

Logbook Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
1.2	Accident preventive protection of machinery.	2.2	Konstruksie, inmeekaarsit, installing, onderhoud en herstel van handelskoelinstallasies, met inbegrip van die gebruik van lekspoortoestelle.
1.3	Precautions related to the operation of roll lathes.	2.3	Kennis van een- en driefasige elektriese motore en aansitters soos dié in koelinstallasies gebruik.
1.4	Correct signals to use for signalling to crane driver when rolls are lowered into or lifted out of lathes.	2.4	Opleiding tot die standaard wat deur plaaslike owerhede vereis word om die vakleerling toe te laat om alle elektriese motore te konnekteer en te diskonnekteer.
2	Metal forming by rolling process: Classification of rolling mills, mill stands and accessories.	3	Hersiening en onafhanklike werk.
2.1	Roll manufacturing: Ordinary casting, chill casting and forging; materials used for making rolls i.e. carbon steel, alloy steel, cast iron and spheroidal graphite iron.		
2.2	Classification of rolls and methods of identifying the class.		(37)
2.2.1	Cast steel rolls.		Ambag: VOERTUIGBAKBOU (METAAL) (40)
2.2.2	Forged steel rolls.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
2.2.3	Alloy steel cast rolls.	1.2	Hantering en versorging van gereedskap en werkwinkel-toerusting.
2.2.4	Chill cast rolls.	1.3	Kennis van materiale wat by vervaardiging en herstel gebruik word.
2.2.5	Cast spheroidal graphite rolls.	1.4	Eienskappe en gebruike van verskillende metale en allooië.
2.3	Reasons for grouping and lay-out of passes on rolls.	1.5	Elementêre herstelwerk en kennis van plaatmetaalwerk.
2.3.1	Standard rules for determining—	1.6	Elementêre sweiswerk.
2.3.1.1	the positions of collars and end collar;	2.1	Eenvoudige buig- en vormwerk—warm of koud.
2.3.1.2	web sizes;	2.2	Herstelwerk van ingewikkelder aard.
2.3.1.3	average diameters;	2.3	Elektriese en gassweiswerk, sweissoldeer, soldeer en veegsoldeer.
2.3.1.4	maximum and minimum diameters;	2.4	Lees van tekenings.
2.3.1.5	percentage slope of flange and collar sides;	2.5	Bou van bakke wat heeltemal van staal is.
2.3.1.6	the amount of material to be turned off when reconditioning rolls; and	2.6	Sny, buig en vorm van onderdele.
2.3.1.7	allowance for spring.	2.7	Elementêre kennis van onderstelveranderings.
2.4	Functional identification of rolls e.g. top, middle and bottom rolls.	2.8	Maak en afmerk van patrone.
3	Roll lathes: Construction, operation and care of different types of roll lathes.	3	Hersiening en onafhanklike werk.
3.1	Roll lathe accessories.		
3.1.1	Cutting tools: Steels used for making cutting tools; types of tools used; heat treatment of tool steels, care of carbide tipped tools. Making up plain cutting tools for roll turning.		(38)
3.1.2	Measuring tools: Use of both metric and British units of measurement; correct use and care of rules, tapes, vernier calipers, feeler gauges, inside and outside micrometers and calipers, templates, straight edges and percentage gauges.		Ambag: VOERTUIGBAKBOU (SAAMGESTELD) (39)
4	Laying out and marking-off of passes on rolls from drawings.	1.1	Veiligheidsmaatreëls van toepassing op die ambag.
5	Roll turning:	1.2	Hantering en versorging van gereedskap en werkwinkel-toerusting.
5.1	Setting up of lathes to turn different classes of rolls;	1.3	Kennis van materiale wat by vervaardiging en herstel van staalmotorvoertuigbakke gebruik word.
5.2	turning to markings of plain roll barrels;	1.4	Elementêre herstelwerk aan bakke.
5.3	turning to markings of pre-roughed-out barrels;	1.5	Afwerk van timmerhout en maak van houtlasse.
5.4	reconditioning of used rolls; and	1.6	Elementêre kennis van houtwerkmasjiene.
5.5	grinding of cutting tools. Correct cutting tool angles for all types of tool steels and roll qualities.	2.1	Aanmeekaarsit van bakke.
5.5.1	Setting up of grinding machines. Selection of correct grinding wheels for each type of tool steel.	2.2	Kennis van tekenings lees.
5.6	Clamping and setting up of cutting tools in lathes.	2.3	Afmerk en opstel van bakke en onderdele vir herstel en vervaardiging.
5.7	Centre drilling of new rolls. Method of marking off and setting up of rolls for centre drilling; centre drills.	2.4	Maak van patrone.
5.8	Parting-off work: Techniques for supporting parting tools.	2.5	Opstel van masjiene en patrone.
5.9	Grinding roll passes and roll neck journals. Types of grinding machines used; types of wheels used; correct bond, grit and speed for each application.	2.6	Elementêre paneelklopwerk.
6	Engraving: Techniques and tools. Touching up and modifying engravings on rolls.	2.7	Sny en buig van plat plaatmetaalonderdele.
7	Touching up of passes during rolling operation.	2.8	Elementêre kennis van grofsmidwerk en sweiswerk.
8	Turning off wrapped-round collars.	2.9	Binne-afwerking van bakke.
9	Setting up and operating copying lathes.	3	Hersiening en onafhanklike werk.
10	Turning new rolls; reconditioning used rolls for light, medium and heavy section rolling.		
	(34)		(39)
	Trade: SCALE FITTING (29)		Ambag: VORMGIETWERK (24)
1.1	Safety precautions applicable to the trade.	1.1	Voorsorgmaatreëls van toepassing op die ambag.
1.2	Use of hand and precision tools.	1.2	Die maak en plasing van kerns.
1.3	Chipping, filing, sawing, scraping, drilling, reaming, tapping and screwing.	1.3	Gasuitlating.
1.4	Care and use of measuring tools.	1.4	Gebruik van vuurvaste voorvlakke.
1.5	Reading of drawings and their application.	1.5	Droogmetodes.
1.6	Knowledge of physical properties of various metals.	1.6	Sorg vir kernbakke.
1.7	Repairs to simple weighing machines.	1.7	Gebruik van gereedskap, toestelle en materiale.
2.1	Training in general principles of all types of weighing machines and repairs thereof.	1.8	Meng van kernsand.
		1.9	Sorg vir patrone.
		1.10	Vorming van kernversterking.
		1.11	Maak van gietvorms.
		1.12	Kernplasing; toemaak van vorms; drukstutting; ver-seëling (of afdigting) van gasuitlaatopenings; vorm-kasklemming.
		1.13	Maak van gietkernysters.
		1.14	Algemene beginsels van metaalinvoering en gebruik-making van styglopers.
		1.15	Gebruik van sintetiese sandsoorte, met inbegrip van CO ₂ -sand.

Logbook Symbols	Practical Training	Logboek-simbool	Praktiese opleiding
2.2	Installation of weighing machines, weigh bridges and platform scales.	2.1	Maak van gevorderde tipes gietvorms; sny van lassnitte; vashaak; versterking; kernplasing; toemaak van vorms en giet.
2.3	Maintenance of weighing machines, weigh bridges and platform scales.	2.2	Gevorderde kernmaakwerk en gietwerk, met inbegrip van skeletmodelvorming.
2.4	Repair of weighing machines, weigh bridges and platform scales.	2.3	Onderrig saam met vakman oor die giet en maak van meer gevorderde en ingewikkelde gietwerk, met inbegrip van die maak van gietkernysters en versterkings.
2.5	Preparation for assizing of weighing machines, weigh bridges and platform scales.	3.1	Hersiening.
2.6	Instruction in the assize regulations.	3.2	Sandbeheer; beginsels van metaalinvloering; gebruik-making van styglopers en metaalinlating; gebruik van afkoelvorms.
3	Revision and independent work.	3.3	Beginnels van gietdefekte.
	(35)	3.4	Praktiese gebruik van smelteenhede.
	Trade: SHEETMETAL WORKING (25)	3.5	Temperatuurbeheer.
1.1	Safety precautions applicable to the trade.	3.6	Praktiese standaardgieterijbeheertoetse in sowel metaal as sand.
1.2	Care and use of tools and machines.	3.7	Onafhanklike vormgiet- en kernmaakwerk van die groter en ingewikkelder gietvorms en kerns.
1.3	Soldering and use of fluxes.	4.1	Hersiening.
1.4	Riveting.	4.2	Selfstandige gietvorm- en kernmaakwerk op die algemene werkvloer, met inbegrip van kernplasing, drukstutting, verseëling (of afdigting) van gasuitlaat-openings, drukstutting van groot kerns, toemaak van vorms, gewigdruk en vormkasklemming.
1.5	Marking out of simple work.	5	Hersiening en selfstandige werk met spesiale nadruk op hersiening van werk wat blykbaar nie so goed gesnap is nie.
1.6	Making of simple sheetmetal parts.		(40)
1.7	Reading of drawings.		Ambag: WALSDRAAIWERK (33)
2.1	Marking out, developing and making of more advanced sheetmetal parts.	1	Veiligheid: Gedurende onderrig in veilige werkgewoontes dwarsdeur leertyd.
2.2	Flat pattern work.	1.1	Voorsorg wanneer met masjiengereedskap gewerk word.
2.3	Making of sheetmetal components from drawings.	1.2	Afskerming van masjinerie om ongelukke te voorkom.
2.4	Preparation of steel and alloy sheet for anti-corrosive treatment.	1.3	Voorsorg in verband met die bediening van walsdraai-banke.
2.5	Care and use of cutting, brazing and welding equipment.	1.4	Korrekte handtekens wat gebruik moet word vir die oordra van instruksies aan kraandrywers wanneer walse in draaibanke neergelaat of uitgelig word.
2.6	Stretching and shrinking of material during processing.	2	Metaalvorming deur middel van walsproses: Klassifikasie van walserye, walsstellings en toebehoere.
2.7	Use of power-driven machinery.	2.1	Walse maak: Gewone giet-, kilgiet, en smeewerk; materiale om walse van te maak, d.w.s. koolstaal, allooistaal, gietyster en sferoïdale grafietysfer.
2.8	Making of soldered and riveted assemblies.	2.2	Klassifikasie van walse en metodes om 'n klas uit te ken.
3	Revision and independent work.	2.2.1	Gietstaalwalse.
	(36)	2.2.2	Smeestaalwalse.
	Trade: TELEPHONE COMMUNICATIONS ELECTRICIAN (34)	2.2.3	Gegote allooistaalwalse.
1.1	Safety precautions applicable to the trade.	2.2.4	Kilgegote walse.
1.2	Care and use of tools.	2.2.5	Gegote sferoïdale grafietwalse.
1.3	Telephone distribution and faulting.	2.3	Redes vir groepering en uitset van walsgange op walse.
1.4	Telephone testing and faulting, also telegraph instruments - manual and machine types.	2.3.1	Standaardreëls om die volgende vas te stel:
1.5	Installation, faulting and overhaul.	2.3.1.1	Die posisie van krae en entkraag;
1.6	Maintenance on all phases of work.	2.3.1.2	webgroottes;
2.1	Safety precautions applicable to the trade.	2.3.1.3	gemiddelde deursnee;
2.2	Experience on overhead lines, cables (underground and indoor) and communication apparatus.	2.3.1.4	maksimum en minimum deursnee;
2.3	Automatic exchange work on routine tests, fault location and adjustments.	2.3.1.5	hellingpersentasie van flens- en kraagsye;
2.4	Maintenance of carrier current telephone systems.	2.3.1.6	hoeveelheid materiaal wat afgedraai moet word wanneer walse vernuwe word; en
2.5	Repeaters and V F-telegraph systems.	2.3.1.7	toelating vir veerkrag.
2.6	Rewinding and repair of coils and chokes.	2.4	Funksionele uitkenning van walse, bv. boonste, middelste en onderste walse.
2.7	Manual and automatic telephone exchanges - principles, installation, faulting, overhaul, adjustment.	3	Walsdraaibanke: Konstruksie, bediening en versorging van verskillende soorte walsdraaibanke.
2.8	Network and thermionic circuits.	3.1	Walsdraaibanktoebehoere.
2.9	Transmission systems - installation, testing and faulting.	3.1.1	Snygereedskap: Soorte staal om snygereedskap van te maak; soorte gereedskap gebruik; hittebehandeling van gereedskapstaal; sorg vir karbidpuntgereedskap.
2.10	Reading of schematic and physical diagrams and working knowledge of their application.	3.1.2	Die maak van stelle gewone beitels vir walsdraaiwerk.
2.11	Testing and repair of radio equipment.	4	Meetgereedskap: Gebruik van metrieke sowel as Britse mate; regte gebruik en versorging van duimstokke, meetbande, noniuspassers, voelers, binne- en buite-mikrometers en passers, patrone, reie en persentasie-meters.
2.12	Testing and repair of public address systems.	5	Uitset en afmerk van walsgange op walse volgens tekenings.
2.13	Recording and repair of radio equipment transformers.	5.1	Walsdraaiwerk: Opstel van draaibanke om verskillende klasse walse te draai.
2.14	Installation, maintenance and testing of radio apparatus.		
3.1	Safety precautions applicable to the trade.		
3.2	Revision and independent work.		
	(37)		
	Trade: TOOL AND JIG MAKING (11)		
1.1	Safety precautions applicable to the trade.		
1.2	Care and use of hand tools.		
1.3	Chipping, filing, sawing, scraping, drilling, reaming, tapping and screwing.		
1.4	Reading of drawings and application thereof.		
1.5	Physical properties of various metals.		
1.6	Care and use of measuring tools including micrometers and verniers.		
1.7	Operating shaping, slotting and drilling machines.		

Logbook Symbols	Practical Training
1.8	Care and use of cutting and forming tools.
1.9	Simple centre lathe work.
1.10	Correct use of feeds and speeds for different materials and operations.
2.1	Operating milling machines including use of dividing head.
2.2	Operating tool grinding machines, lathes and special machines peculiar to the trade.
2.3	Heat treatment.
2.4	Making to drawings and repair of templates, gauges, jigs, fixtures and tools.
3	Revision and independent work.
(38)	
<i>Trade: TURNING (INCLUDING MACHINING) (5)</i>	
1.1	Safety precautions applicable to the trade.
1.2	Care and use of cutting and forming tools.
1.3	Care and use of measuring tools and instruments.
1.4	Grinding of drills and tools.
1.5	Simple centre lathe work.
1.6	Operation of drilling and shaping machines.
1.7	Reading of drawings and application thereof.
1.8	The correct use of feeds and speeds for different materials and operations.
2.1	Advanced centre lathe work.
2.2	Internal and external screw cutting.
2.3	Multiple start threads.
2.4	Different types of threads.
2.5	Use of special tools and jigs.
2.6	Setting up of work and use of face plate.
2.7	Internal and external taper turning.
2.8	Operation of milling machines including the use of attachments.
3	Revision and independent work.
(39)	
<i>Trade: VEHICLE BODY BUILDING (COMPOSITE) (38)</i>	
1.1	Safety precautions applicable to the trade.
1.2	Handling and care of tools and shop equipment.
1.3	Knowledge of materials used in the manufacture and repair of steel motor vehicle bodies.
1.4	Elementary repairs to bodies.
1.5	Dressing of timber and making wooden joints.
1.6	Elementary knowledge of wood machinery.
2.1	Assembly of bodies.
2.2	Knowledge of reading drawings.
2.3	Marking and setting out of bodies and components for repair and manufacture.
2.4	Making of templates.
2.5	Setting of machines and jigs.
2.6	Elementary panelbeating.
2.7	Cutting and bending of flat sheetmetal parts.
2.8	Elementary knowledge of blacksmithing and welding.
2.9	Inside finishing of bodies.
3	Revision and independent work.
(40)	
<i>Trade: VEHICLE BODY BUILDING (METAL) (37)</i>	
1.1	Safety precautions applicable to the trade.
1.2	Handling and care of tools and shop equipment.
1.3	Knowledge of materials used for manufacture and repair.
1.4	Properties and uses of various metals and alloys.
1.5	Elementary repairs and knowledge of sheetmetal work.
1.6	Elementary welding.
2.1	Simple bending and forming - hot or cold.
2.2	Repairs of more complex nature.
2.3	Electric and gas welding, brazing, soldering and wiping.
2.4	Reading of drawings.
2.5	Construction of all-steels bodies.
2.6	Cutting, bending and forming of components.
2.7	Elementary knowledge of chassis alterations.
2.8	Making and marking out of templates and patterns.
3	Revision and independent work.

Logboek-simbool	Praktiese opleiding
5.2	Draai van eenvoudige walse volgens gemerkte patroon.
5.3	Draai van walse waarvan die voorsnywerk alreeds gedoen is volgens gemerkte patroon.
5.4	Vernuwing van gebruikte walse.
5.5	Slyp van snygereedskap. Gepaste beitelhoeke vir elke soort beitel- en walsmetaal;
5.5.1	Opstel van slypmasjiene: Keuse van regte slypwiele vir elke soort gereedskapstaal.
5.6	Vasklamp en opstel van snygereedskap in draaibanke.
5.7	Senterboor van nuwe walse: Hoe om walse vir senterdraaiwerk af te merk en op te stel; senterbore.
5.8	Afsteekwerk: Tegnieke om afsteekbeitels te stut.
5.9	Slyp van walsdeurgange en walsnekastappe. Soorte slypmasjiene gebruik; soorte wiele gebruik en korrekte binding, grint en snelheid vir elke gebruik.
6	Graveerwerk: Tegnieke en gereedskap. Fyn afwerk en veranderings aan graveerwerk aan walse.
7	Opknap van walsgange tydens walsproses.
8	Afdraai van omgedraaide krae.
9	Opstel en bediening van kopieerdraaibanke.
10	Nuwe walse draai; vernuwing van gebruikte walse vir ligte-, middelslag- en swaarprofielwalswerk.
(41)	
<i>Ambag: WALSGEREEDSKAP EN -PATRONE MAAK (32)</i>	
1	Veiligheid: Gedurige onderrig in veilige werkgewoontes dwarsdeur leertyd.
1.1	Voorsorg in verband met handgereedskap.
1.2	Voorsorg teen skadelike gasse onder druk.
1.3	Voorsorg in verband met druklug- en elektries aangedrewe handgereedskap.
1.4	Voorsorg teen skadelike en vlambare gasse.
1.5	Voorsorg in verband met masjiengereedskap.
1.6	Afskerming van masjiene om ongelukke te voorkom.
2	Afmerkwark: Van tekening af met presisie-afmerkgereedskap, bv. noniushoogtemeter, verdeelpassers, duimstokke, V-blokke, vlak- en hoekplate.
3	Paswerk: Meganiese eienskappe van metale wat gewoonlik gebruik word; kennis van die handgereedskap in die ambag gebruik bv. hamers, vyle, beitels, ystersae, skrapers, ruimers, draadsnygereedskap, presisiemeetgereedskap soos noniusspassers en mikrometers; toleransies; passings; spelings; afwerking; spesifikasies vir alle soorte skroefdraad in die ambag gebruik.
3.1	Handwerk: Presiese werkstukke van ysterhoudende metaal maak deur die volgende tegnieke toe te pas nl. vyl-, kap-, saag-, skroefdraad-, sny-, skraap-, ruim- en boorwerk.
3.2	Bore slyp: Bore met die hand slyp. Snysnelhede en -hoeke vir die verskillende metale in die ambag gebruik.
4	Soldeerwerk: Soorte soldeer- en smeltmiddels gewoonlik vir hardsoldeerwerk gebruik; sorg vir en veilige hantering van gasvlampype, drukmeters en gas-silinders; verhittingstegnieke.
4.1	Silwersoldeerwerk.
4.2	Hardsoldeerwerk.
5	Patrone maak: Van tekenings afmerk, uitsny en afwerk binne gespesifiseerde toleransies met gebruikmaking van metrieke en Britse maateenhede. Keuse van regte lemme om verskillende diktes en soorte materiaal op bandsae te saag; materiaal wat vir patrone gebruik word; snysnelhede; soorte vyle gebruik.
6	Ykmate maak: Ykmate maak wat in walsdraai- en alle walsprosesse gebruik word. Soorte ykmate; materiaal wat vir die maak van ykmate gebruik word.
7	Fatsoenering van gevormde beitelpunte: Van tekenings af merk; volgens profiele deur middel van ykmate en patrone uitsny en afwerk uit gereedskapstaal en wolfram-karbidbeitelpunte. Tegnieke om gereedskapstaal te bewerk; hittebehandeling van gereedskapstaal; sny- en spelingshoeke van walsdraaibankbeitels vir verskillende gebruiksomstandighede.
7.1	Gereedskapslypmasjiene opstel: Gebruik van slypmasjiene om beitelpunte skerp te maak; soorte slypmasjiene in die ambag; soorte slypwiele in die ambag; vorms, binders en grint vir verskillende gebruike.
7.2	Opknap en fatsoener van slypwiele. Sorg vir en gebruik van verskillende soorte wielopknappmiddels.
8	Draaibankgereedskap maak: Alle soorte draaigereedskap deur vooraf gevormde karbid- en gereedskap-

Logbook Symbols	Practical Training
	(41) <i>Trade: WELDING (32)</i>
1.1	Safety precautions applicable to the trade.
1.2	Care and use of tools, equipment and material.
1.3	Oxy-acetylene cutting of a simple nature by hand and machine.
1.4	Electric arc welding.
1.5	Oxy-acetylene welding.
1.6	Reading of drawings.
1.7	Interpretation of welding symbols.
2.1	Advanced electric welding including positional welding.
2.2	Advanced oxy-acetylene welding including positional welding.
2.3	Methods of prevention of distortion and cracking.
2.4	Techniques of pre-heating, post-heating and cooling.
2.5	Welding sequences and stress relieving.
2.6	Use and operation of specialised welding machines.
2.7	Welding of pressure vessels and radiograph techniques.
2.8	Argon arc welding.
2.9	Oxy-acetylene cutting including profile cutting, straight line cutting and hand cutting.
3	Revision and independent work.

Logboek-simbool	Praktiese opleiding
	staalpunte te gebruik. Metodes om vooraf vervaardigde punte aan beitelskagte te heg; regte hoeke vir punthouers; vorm van gereedskap om stewigheid tydens gebruik te verseker.
9	Walsgraving: Graveergereedskap en tegnieke in die ambag.
10	Gewone draaiwerk op senterdraaibank. Bediening van en sorg vir draaibank; snysnelhede en toevoertempo; gereedskaphoeke vir materiaal in die ambag gebruik.
11	Vorming van materiaal wat gebruik word vir die maak van gereedskap wat vir walsdraaiwerk nodig is. Bediening van en sorg vir sterkarmskaafmasjiene; die masjinerie van beitelpunte.
12	Bediening van en sorg vir freesmasjiene (geen indeks-werk); soorte frese wat vir gewone freeswerk nodig is; snysnelhede en toevoertempo. Gewone freeswerk aan materiaal wat gebruik word vir die maak van gereedskap wat vir walsdraaiwerk nodig is.
13	Die maak van beitels, patrone, ykmate en toebehore wat vir walsdraaiwerk nodig is.
14	Vernuwing van freesgereedskap en toebehore in walsdraaiwerk gebruik.
15	Produk-uitkenningsmerk graveer in nuwe walse en in walse wat in gebruik is.

All interested persons who have any objection against the above proposals are called upon to lodge such objections, in writing, with the Secretary, National Apprenticeship Committee for the Metal Industry, Private Bag 117, Pretoria, within 30 days from the date of publication of this notice.

M. VILJOEN,
Minister of Labour.

Alle belanghebbende persone wat enige beswaar teen bogemelde voornemens het, word aangesê om sodanige besware skriftelik in te dien by die Sekretaris, Nasionale Vakleerlingskapkomitee vir die Metaalnywerheid, Privaatsak 117, Pretoria, binne 30 dae vanaf die datum van publikasie van hierdie kennisgewing.

M. VILJOEN,
Minister van Arbeid.

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