

**THE NATIONAL COUNCIL FOR TECHNICAL AND VOCATIONAL
EDUCATION AND TRAINING**



***MANUALS FOR ESTABLISHING A VET CENTRE
FOR
COMMERCIAL SERVICES AND BUSINESS SUPPORT SECTOR***

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JULY, 2022

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LIST OF ABBREVIATIONS

CBET	-	Competence Based Education and Training
FTC	-	Full Technician Certificate
TT	-	Trade Test
VET	-	Vocational Education and Training
NACTVET	-	National Council for Technical and Vocational Education and Training
VTC	-	Vocational Training Centre
VTTC	-	Vocational Teachers Training College

PREAMBLE

Vocational Education and Training in Tanzania is governed by the National Council for Technical and Vocational Education and Training, established under the National Council for Technical and Vocational Education and Training Act, Cap. 129. This act empowers NACTVET to oversee and coordinate the provision of technical and vocational education in non-university institutions across the country. This manual therefore, gives guiding parameters so as to meet the minimum required standards set by the NACTVET Governing Council having in mind that one of its major roles is to ensure that vocational education and training provision satisfies the demands of the labour market with employees who have the required knowledge, skills and attitudes in order to improve production and productivity of our economy. When preparing the manual the following key areas were considered as essential for establishing Vocational Training Centres.

- A clearly defined organisation structure showing all the key positions for the efficient and effective operation of the Centre.
- NACTVET has set the standard required qualifications and competences which must be met by Vocational Teachers. The vocational teachers will be licensed and categorised by NACTVET according to their qualifications and experiences.
- This manual also provides criteria for a standard Vocational Training Centre (VTC) which will allow them to be registered and categorised accordingly. If the standards are not met, then the VTC will not be registered and Training Programmes will not be allowed.
- For the purpose of proper financial control of Centre funds, each VTC must keep proper records of all financial transactions showing the incomes and expenditures of the centre.
- Standard floor area requirements for workshops, classrooms, hostels, dining hall, offices, stores, library, toilets, playing fields etc, must be maintained. External and internal environment must also be conducive for training.
- Basic machines, equipment, tools and furniture must be provided to workshops and classrooms. Inventories must be well kept and updated. The items mentioned above must appear by proper name and specification in the inventory. Architectural drawings for all buildings, drawings for electrical wiring and drainage systems must be well kept by the Principal of the Centre.

NACTVET being vested with the role of overseeing and regulating the provision of Vocational Education and Training of other Providers will strictly observe these guidelines during the process of registration and categorisation of Vocational Training Centres.

Finally, it is believed that a VTC operating under these guidelines will produce the right outputs for the labour market, thereby increasing the productivity of our economy. It is also hoped that this manual will not remain static but is subject to updating when the conditions require so.

PART ONE

1. INTRODUCTION

The kind of VET system that is needed to spearhead socio-economic development in Tanzania will demonstrate itself in the kind of VTCs it will establish. There will be a close relationship between quality VTCs and products (trainees and services) it will produce. Countries with properly established VET centres are invariably placed to produce quality products.

This manual is intended to provide necessary information regarding requirements for the establishment of VTCs. In this manual quality parameters are defined. This will help to maintain consistency in training delivery.

Quality parameters are defined basing on three major areas which seek to address implementation of the Competence Based Education and Training (CBET) concept. These key areas are quality and sufficiency of tools and equipment, governance of the centre and infrastructure.

Vocational education and training is offered in 12 sectors which cover National vocational Award 1-3. The sectors include Civil and Building Engineering, Commercial and Business Support, Hospitality and Tourism, Automotive, Agriculture and Food Processing, Mining, Clothing and Textile Technology, Cosmetology, Transport, Mechanical and Printing. However, this manual focuses on the Agriculture and Food Processing occupations.

To ensure that each registered centre offers training according to its capacity. Registration of VET centres will be done according to the following categories:

1.1. Categorization of VTCs.

A Centre will be registered under any of the categories listed in Table R1.

Table R1: Criteria for Categorization of VTCs

CATEGORIZATION	CRITERIA	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
1. Occupation.	1.1. Number of occupations.	Minimum eight (8) occupations for multi-sectoral Centres or four (4) for sector specific Centres.	Minimum five (5) occupations for multi-sectoral Centres or two (2) for sector specific Centres.	Minimum one (1) occupation.	Minimum one (1) occupation.
	1.2. Qualifications levels.	Minimum of four (4) occupations offered above level II.	Minimum of two (2) occupations offered above level II.	Minimum of one (1) occupation offered up to level II.	Minimum of one (1) occupation up to level I.
2. Staff Qualifications 1.1 Principal	1.1.1 Academic qualifications	Minimum Form VI or equivalent.	Minimum Form VI or equivalent.	Minimum Form VI or equivalent.	Minimum Form IV or equivalent.
	1.1.2 Professional qualifications.	1 st Degree in technical/vocational education or equivalent for VTCs with training up to level IV and Master above level IV.	1 st Degree in technical/vocational education or equivalent for VTCs with training up to level IV and Master above level IV.	1 st Degree in technical/vocational education or equivalent for VTCs with training up to level IV and Master above level IV.	Certificate in technical education or equivalent
	1.1.3 Work Experience in relevant field.	Minimum three (3) years.	Minimum three (3) years.	Minimum three (3) years.	Minimum five (5) years.
1.2 Vocational teacher	1.2.1 Academic qualifications.	Minimum Form IV.	Minimum Form IV.	Minimum Form IV.	NA
	1.2.2 Professional qualifications.	Minimum one level above the level taught in a relevant occupation or field. TEACHER MINIMUM LEVEL III.	Minimum one level above the level taught in a relevant occupation or field. TEACHER MINIMUM LEVEL III.	Minimum one level above the level taught in a relevant occupation or field. TEACHER MINIMUM LEVEL III.	National vocational certificate of competence or equivalent
	1.2.3 Teaching qualifications.	Minimum Teacher Certificate in education.	Minimum Teacher Certificate in education.	Minimum Teacher Certificate in education.	Minimum Instructional Methods Certificate (IMC).
	1.2.4 Work Experience in relevant field.	Minimum three (3) years.	Minimum three (3) years.	Minimum three (3) years.	Minimum five (5) years in relevant field.
1.3 Training Coordinator/ Registrar	1.3.1 Academic qualifications.	Minimum Form IV.	Minimum Form IV.	Minimum Form IV.	NA
	1.3.2 Professional qualifications.	Minimum Ordinary Diploma in technical field or equivalent for VTCs with training up to level IV and 1 st Degree above level IV.	Minimum Ordinary Diploma in technical field or equivalent for VTCs with training up to level IV and 1 st Degree above level IV.	Minimum Ordinary Diploma in technical field or equivalent for VTCs with training up to level IV and 1 st Degree above level IV.	NA
	1.3.3 Work Experience in training	Minimum three (3) years.	Minimum three (3) years.	Minimum three (3) years.	NA
1.4 Accountant	2.4.1. Academic qualifications.	Minimum Form VI.	Minimum Form IV.	Minimum Form IV.	NA
	2.4.2. Professional qualifications	Minimum Diploma or equivalent in relevant field	Minimum Diploma or equivalent in relevant field	Certificate equivalent in relevant field	NA
	2.4.3. Work Experience in relevant field	Minimum three (3) years.	Minimum three (3) years.	Minimum three (3) years.	NA

CATEGORIZATI ON	CRITERIA	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
2. Centre Capacity.	2.1 Teacher trainee's ratio per class.	1:20	1:20	1:20	1:5
	2.2 Infrastructure.	As per Manual for establishing VET Centres.	As per Manual for establishing VET Centres.	As per Manual for establishing VET Centres.	Enough for five (5) trainees as per programme requirements
	2.3 Tools and equipment.	As per Manual for establishing VET Centres.	As per Manual for establishing VET Centres.	As per Manual for establishing VET Centres.	Enough for five (5) trainees as per programme requirements

We hope that the guidelines will be useful not only to those who would like to establish a VTC for specific occupations but also to providers who wish to improve their existing VTCs for the purpose of registration.

The manual is divided into five main parts, namely: centre governance, staffing, centre financial management, infrastructure, tools and equipment.

PART TWO

2. VOCATIONAL TRAINING CENTRE GOVERNANCE

Good governance is an important aspect in establishing a VET centre. It ensures accountability, participation, transparency, equity and rule of law in operation of the VET centre. This will also play part in making the centre sustainable. Involvement of stakeholders in governing the centre is imperative. It is therefore mandatory for a VET centre with categories A - C to have an Advisory Board/Board of Trustees.

The composition of the Board will have the following representation:

- i. Centre owner;
- ii. Parents;
- iii. Employers;
- iv. Government at District /division level;
- v. Centre employees; and
- vi. Principal-Secretary to the Board.

PART THREE

3. STAFFING

Staffing of a Centre will consist of the following personnel:

(a) Principal

The Principal is the Chief Executive of the centre. He/she will develop strategies and policy matters that included soliciting donor fund, centre and VET promotion, sensitize stakeholders with view to meet the centre goals and plan. For the centre with categories A-C, he/she will be the secretary to the Centre Advisory Board/Centre Board of Trustees.

Under these categories the Principal will be assisted by the following titles- Training Coordinator, Centre Administrator, Accountant, Entrepreneurship and Short course coordinator.

Minimum Qualifications of a Centre Principal:

For category A, B and C VET centres

- i. Degree in Technical / Vocational Education or equivalent.
- ii. Three (3) years work experience in the relevant field.

For category D VET centres

- i. Certificate in Technical / Vocational Education or equivalent.
- ii. Five (5) years work experience in the relevant field.

(b) Training Coordinator

The functions of a training coordinator in a VTC will be those activities related to training which include trainees' enrolment, coordination of trainees' assessment, monitoring training, discipline, guidance and counselling, Trainees' welfare in general and preserving centre

environment. The coordinator will be supported by Head of departments, warden/matron and head cook.

Minimum Qualifications of a Training Coordinator

- i. Ordinary Diploma or equivalent in any technical education field;
- ii. Certificate in teaching;
- iii. Three (3) years experience in training.

(c) Human Resource Officer

The Human Resource Officer will provide support for day to day administrative activities which include; staff welfare, staff development, security matters and stores.

Minimum Qualifications of a Human Resource Officer

- i. Certificate in Human Resources Management;
- ii. Three (3) years experience in relevant field.

(d) Accountant

The Accountant will keep all financial and accounts records of the centre.

Minimum Qualifications of the Accountant

- i. Diploma in accountancy;
- ii. Three (3) years experience in relevant field.

(e) Secretary

The secretary will be a personal assistant to the Principal and will perform all duties related to secretarial responsibilities.

Minimum Qualifications of the Secretary

- i. Form IV education;
- ii. Stage III certificate.

(f) Teaching staff

Vocational teachers have the central role of making the training relevant. Vocational teachers are the first-line practitioners of vocational training. A befitting vocational teacher to carryout vocational training within the Tanzanian VET system will have the following attributes:

- i. Critically alert;
- ii. Imaginative, innovative, proactive, creative;
- iii. A cultivated person with the courage and ability to face and solve problems;
- iv. Active in the pursuit of truth and goodness within the overall accepted aspirations of a nation at large; and
- v. Willingness to learn.

To ensure efficiency and effectiveness in training delivery, the maximum vocational teacher – trainee’s ratio will be 1:20.

Minimum Qualifications of a Vocational Teacher

Vocational teachers shall be licensed and categorised according to their qualifications and the level (s) in which they are allowed to teach. The required qualifications for vocational teachers are as described hereunder:

Vocational teachers for level I-III shall have the following qualifications:

- i. Holders of FTC, Diploma or other equivalent qualifications in the relevant field;
- ii. Teaching certificate obtained from VTTC or any other recognised institution; and
- iii. At least three (3) years of post training relevant practical work experience in his/her field of specialisation.

Vocational teachers for level I-II shall have the following qualifications:-

- i. Form IV secondary certificate;
- ii. Vocational Certificate of Competence or equivalent;
- iii. Teaching certificate obtained from VTTC or any other recognised institution; and
- iv. At least five (5) years of post training relevant work experience in his/her field of specialization.

Competences of a vocational teacher

A Vocational Teacher must possess the following competences:

- i. Able to interpret occupational training standards into learning process;
- ii. Evaluate training process and outcomes;
- iii. Compare training offered and the demand from the labour market;
- iv. Prepare report on training implementation in his/ her own workshop;
- v. Prepare maintenance schedule for training tools and equipment;
- vi. Counsel and guide trainees in the workshop; and
- vii. Ability to maintain a conducive environment for learning.

NB : Permanent teachers should be two thirds ($\frac{2}{3}$) of all teachers in the centre.

PART FOUR

4. CENTRE FINANCIAL MANAGEMENT

Proper management of centre finances is very important. It is therefore advised for anyone who aspires to establish a VET centre at categories A-C has to ensure that proper systems for managing finances are in place. These will ensure stability and sustainability of a VTC in a long run.

The following are important pre requisites:

- a) Bank account;
- b) Qualified staff;
- c) Reliable sources of funds; and
- d) Management of Cash Flow

PART FIVE

5. INFRASTRUCTURE

Infrastructure of a VTC with categories A-C include, among other things, workshops, classrooms, trainees hostel, conference hall, storage facilities, staff houses, and external environment. All building infrastructure should be able to accommodate people with special needs.

For the VTC with category D should have proper premises to facilitate practical and theoretical training. It should have some storage facilities and provision facilities for hygiene.

In deriving the size of the area suitable for training, the following factors have been taken into account:

- i. The number of trainees in one workshop;
- ii. Type of equipment;
- iii. Air circulation in a room; and
- iv. Movement of users within a room and around the building for various activities.

The provided schematic drawings demonstrate how a workshop or a training space should look like. It is not obligatory to use the same design but one should adhere to specifications provided in the Table 1. Users are strongly advised to seek for technical expertise from professionals who will help them translate information contained in this work into proper architectural and engineering drawings required for erection of buildings.

In this respect, construction of centres should consider standards as elaborated in the Table 1.

TABLE 1: INFRASTRUCTURE SPECIFICATIONS

S/N	ITEM/DESCRIPTION	NORM/SPECIFICATIONS
1.	Vocational teacher– Trainee Ratio.	1:16 -20 (Capacity for a single class/workshop is between 16 to 20 trainees).
2.	Area per trainee. <ul style="list-style-type: none"> Workshops (without offices). Classrooms (without offices). Conference Hall (without offices). Dining Hall (without kitchen). Library. Kitchen facility. 	<ul style="list-style-type: none"> 5 -14sqm per Trainee (workshop with light equipment like tailoring, computer applications – 5sqm/trainee; those with large equipment e.g. machinery fitter, etc. 12 – 14sqm/trainee can be used). 2.5 – 3 sq m per trainee. 1.5 – 2.5 sq m per trainee. 1.5 – 2.5 sq m per trainee. 2.5 – 3.5 sq m per trainee. 0.2 – 0.3 sq m per trainee.
3.	Areas for other general facilities. <ul style="list-style-type: none"> Administration Block. Office (for a teacher, officer etc). Office for Head of section/department 	<ul style="list-style-type: none"> 200 – 250 sq m. 10 – 16 sq m. 16 – 25 sq m.
4.	Toilets and change rooms. <ul style="list-style-type: none"> Number of persons per toilet Unit. Minimum unit area. Change rooms. 	<ul style="list-style-type: none"> 4 - 5 persons per toilet unit (staff). 8 -10 trainees per toilet unit (trainees). 1.5 – 2 sq m. 1 – 1.5 sq m per trainee (it is advised that each workshop should have a change room, which must be gender sensitive. Provision of washing basin and showers in a change room will depend on the type of occupation).
5.	Storage facilities. <ul style="list-style-type: none"> General store. Office store. Workshop store. 	<ul style="list-style-type: none"> 12 - 30 sq m. 2 – 6 sq m. 10 – 30 sq m (the shape of which has to depend on the type and nature of materials to be stored).
6.	Trainees Hostel. <ul style="list-style-type: none"> 4 trainees per room. 	<ul style="list-style-type: none"> 16-24 sq m per room with height 3.0m Provide study room for at least 20 trainees.
7.	Staff house.	100 – 200 sq m per single family house.

S/N	ITEM/DESCRIPTION	NORM/SPECIFICATIONS
8.	Location.	Suitable location of the training facilities required; workshop with heavy duty equipment preferably to be located on the ground floor. Location should consider other surrounding activities.
9.	Floors.	Strong floors capable of withstanding operations of a particular occupation
10.	Structure condition.	The structure and materials to be used should be durable, sound, safe, strong, Impurities free, attractive and available at local market.
11.	Internal environment.	<ul style="list-style-type: none"> • Should be smoke/dust free; well ventilated/air conditioned; enough natural and artificial lighting; appropriate colours in walls and ceiling necessary furniture and fixtures should be available. • Height of head room to be not less than 3m and above • Room relationship to be considered to minimize unnecessary movement. • Type of floor finish to match with the nature of activity performed.
12.	External environment	Provide access roads landscaping, walkways to allow movement people with disability.
13.	Utilities.	Proper electrical installation and power supply ² ; enough water supply; adequate sewerage disposal system; adequate solid waste disposal system; well functioning telecommunication facilities; fire fighting/prevention facilities as per regulations; dust/smoke removing mechanism for dust/smoke generating workshops.
14.	First – Aid facilities and safety gears.	Standard first-aid box with basic medication installed in a conspicuous position; safety gears must be available for both vocational teacher and trainees.
15.	Legality of VET Centre in guidelines and Council Regulations. <ul style="list-style-type: none"> • Birds class layer type • Broiler birds 	NACTVET plays a role of establishing and monitoring guideline to VET provider and not authorizing permission to commence construction activities. The respective regulatory Body is obliged to administer their regulations. <ul style="list-style-type: none"> • Brooding space 20-30 birds/m² • Growing space 10-20 birds/ m² • Layer's birds 5-6 birds/ m² • Brooding space 20-30/ m² • Growing space 10-12 birds/ m²
16.	Space for seedling production (horticulture)	<ul style="list-style-type: none"> • Extra 1-5 Acres required for horticulture practical • Provide reliable source of water for irrigation purposes. • Head room height not less than 3.6 m high.
17.	Chick space:	38cm ² per layer chick, 52cm ² per broiler chick
18.	Size of foundation	The depth of the foundation to be determined at/in site, also nature of soil water table and the load to be imposed. But also the materials to be used

S/N	ITEM/DESCRIPTION	NORM/SPECIFICATIONS
19.	Safety awareness	Adherence to occupational health and safety should be taken on board to enhance high productivity and keep good working environment
20.	Others.	Master timetable placed at conspicuous area; at least one wall clock in each workshop; at least one suggestion box for each VTC. Each VTC has to have indoor or outdoor sports areas.

PART SIX

6. BASIC TOOLS AND EQUIPMENT

The minimum requirements of tools and equipment for a VTC with categories A-C for each occupation are provided. The same specifications of tools and equipment can be used for category D, but quantity and type will depend on curriculum contents to be covered.

The purpose of this list is to provide guidance and help management and authorities of vocational institutions to plan their equipment requirements with accuracy and produce precisely defined technical specifications.

It is advisable when purchasing tools and equipment to consider their durability, serviceability, accuracy, versatility and low operating costs.

APPENDIX 1
LIST OF TOOLS AND EQUIPMENT

**BASIC TOOLS AND EQUIPMENT FOR DESIGN SEWING AND CLOTH TECHNOLOGY
(DSCT) (FOR 20 TRAINEES)**

A. EQUIPMENT

S/N	ITEMS	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
1.	Ward robe/ closet	Wooden cup board with shelves (double door)	Pcs	1:5	√	√	√
2.	Mirror	Full length Mirror size 45 cm x 120 cm with wooden frame.	Pcs	1:10	√	√	√
3.	Sewing machines	Overlock Semi - Industrial 3,4 and 5 cones.	Pcs	1: 5	√	√	√
		Button hole Sewing Machine.	Pcs	1:10		√	√
		Zigzag Sewing Machine	Pcs	1:1	√	√	√
		Chain stitch machine	Pcs	1:10	√	√	√
		Embroidery sewing machine Single head electronic	Pcs	1:10	√	√	√
		Manual.	Pcs	1:1	√		
		Semi-Industrial (20 U)	Pcs	1:1		√	√
4.	Measuring card/sewing gauge	Manila or plastic	Pcs	1:1	√		
5.	Printing Table	Wooden type covered with laminated fabric size 1m Height x4m length x1 1/4m Width	Pcs	1:4			√
6.	Drawing board	Wooden type 60 x 60 cm	Pcs	1:1			√
7.	Designing table	Wooden type 100 cm ² size	Pcs	1:2			√
8.	Printing table	Wooden type 1 m x 4m x 1 1/4 m	Pcs	1:10			√
9.	Blank screens.	3 sizes (small, medium and large).	Pcs	1:1			√
10.	Squeegees	3 sizes (small, medium and large). Rubber blade with wooden /aluminum handle	Pcs	1:1			√
11.	Dark room	Normal dark room with light box size 32 x 48 ins	Pcs	1:20			√

S/N	ITEMS	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
12.	Compressor	Small compressor fitted with airline for blowing	Pcs	1:20			√
13.	Illumination table	For film making 100x1000cm 50x 50cm	Pcs	1:2			√
14.	Spray gun	Water type	Pcs	1:10			√
15.	Fan	Electric type	Pcs	1:10			√
16.	Computer.	CAD design program	Pcs	1:4			√
17.	Basin	Plastic basin oval large size	Pcs	1:4			√
18.	Buckets	Plastic 20 litre volume	Pcs	1:4			√
19.	Jug	2 liters plastic type	Pcs	1:4			√

B. TOOLS

S/N	ITEMS	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
1.	Cutting shears	Large size 25 – 30 cm long	Pcs	1:1	√	√	√
2.	Thimble	Metal type with open tip	Pcs	1:1	√	√	√
3.	Seam ripper	Plastic handle	Pcs	1:1	√	√	√
4.	Stiletto	Normal size (standard) for tailors	Pcs	1:1	√	√	√
5.	Needle grabber	Metal small	Pcs	1:1	√	√	√
6.	Flexible ruler (curve measure)	50cm	Pcs	1:1		√	√
7.	Tape measure	Fibre cloth 150cm long	Pcs	1:1	√	√	√
8.	Cutting table	Wooden type size 100cm height x120cm width x 250cm length	Pcs	1:4	√	√	√
9.	Scissors	<ul style="list-style-type: none"> • For trimming. • Embroidery. • button hole. • Paper. • Pinking 7 – 8 inches • Cutting. 	Pcs	1:1	√	√	√
10.	Brush	Small/soft brush For cleaning sewing machine	Pcs	1:1	√	√	√
11.	Dusters	Chalk board and white board types	Pcs	1:10	√	√	√
12.	Flipchart board	Portable	Pcs	1:20	√	√	√
13.	French curve	Plastic type	Pcs	1:1	√	√	√
14.	Chairs	office chair type	Pcs	1:1	√	√	√
15.	Tracing wheel	Metal medium size with sharp edge	Pcs	1:1	√	√	√
16.	Drawing brush	Sable brush	Doz	1:1		√	√
17.	Ruler	Metal /wooden type 1 m long	Pcs	1:1	√	√	√
18.	Round knife	Electric rotary shear(4 in diametre)	Pcs	1:10	√	√	√
19.	Tailors chalk	Assorted colors	Box	1:1	√	√	√
20.	Pin cushion	Cloth type	Pcs	1:1	√	√	√

S/N	ITEMS	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
21.	Ironing set	Electrical iron	Pcs	1:5	√	√	√
		Sleeve board	Pcs	1:5	√	√	√
		Tailor's arm	Pcs	1:5	√	√	√
		Ironing board	Pcs	1:5	√	√	√
		Steam iron	Pcs	1:5	√	√	√
		Wooden clapper	Pcs	1:5	√	√	√
22.	Drain brush	Mopper/squeegee/bucket	SET	1:5	√	√	√
23.	Tweezers	Standards for tailors	Pcs	1:1	√	√	√
24.	Revolving punch	Normal size	Pcs	1:10	√	√	√
25.	Clothing hanger	Steel/plastic/wood	set	1:1	√	√	√
26.	Dust bin	Drum 200 liters capacity	Pcs	1:10	√	√	√
27.	Button presser	Manual type with different end dies	Pcs	1:20	√	√	√
28.	Dress maker model	Adjustable type	Pcs	1:10	√	√	√
29.	Mannequin	Male and female, small, medium and large sizes.	Pcs	1:4	√	√	√
30.	Velvet board	Standard tailor board	Pkt	1:5		√	√
31.	Hand needles	Assorted sizes	Pcs	1:1		√	√
32.	Square ruler	Plastic-30 cm Metal-50,100,150 cm.	Pcs	1:1		√	√
33.	Embroidery rings	Small/medium/large sizes.	SET	1:1		√	√
34.	Tucking pins	Silver finish.	Box	1:1		√	√
35.	Knottier	Small/medium	Pcs	1:1		√	√
36.	Bodkin	Small/medium	Pcs	1:1		√	√
37.	Pot pan	Aluminum/stainless steel Pot 45 cm diameter	Pcs	1:4			√
38.	Spoons	Table spoon / tea spoon –stainless steel/plastics	Pcs	1:2			√
39.	Gloves	Plastic type	Pcs	1:1			√
40.	Steel drum	200 liters Volume Aluminum/plastic	Pcs	1:10			√
41.	Blocks/templates	Wooden/sponge type for pattern making	Pcs	1:1			√
42.	Stove	Paraffin or electrical	Pcs	1:4			√
43.	Tjanting	Wooden handle with metal spout for patterning.	pcs	1:1			√
44.	Scrapper	Hard plastic/metal blade	Pcs	1:4			√

S/N	ITEMS	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
45.	Weighing scale	Stainless steel, plastic or aluminum	Pcs	1: 10			√
46.	Gloves	Latex Industrial type	Pcs	1:1			√
47.	Mask	Plastic type	Pcs	1:1	√	√	√
48.	Cleaning set	<ul style="list-style-type: none"> • Brooms (Soft and hard). • Sponge blocks 4 x 2 x 2 in. • Cobweb brooms • Scrubbing brooms. • Scrubbing brushes. • Squeezers. • Mops With a 10lts bucket.	Set	1:2	√	√	√
49.	Brushes	Sable Hair brushes	Set	1:1			√
50.	Pencils	Drawing pencil HB	Pcs	1:1	√	√	√
51.	Pens	Drawing pens	set	1:1		√	√
52.	Stirring rods	Wooden/glass type	Pcs	1:1			√
53.	Craft knives	Replicable blade/snap blade	Pcs	1:1			√
54.	Surgical blades	Stainless steel	Pcs	1:1			√
55.	Cutting mats	Plastic/rubber mat 50cmx 50cm	Pcs	1:1	√	√	√
56.	Polyester film.	Single or double matted translucent film.	Roll	1:20			√
57.	Thermometer	Perforated metal armors 8 in length Red mercury type.	Pcs	1:4		√	√

BASIC TOOLS AND EQUIPMENT FOR HANDLOOM WEAVING (16 TRAINEES)

A. EQUIPMENT

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
1.	Frame loom	Wooden or metal frame size 36 x 24. Ins (60cm) of fabric finish.	Pcs	1:1	√		
2.	Tapestry loom	Wooden upright 66 x 24 inches Ins (60cm) of fabric finish.	Pcs	1:1	√		
3.	Table loom	Wooden with 2 to 4 shafts Raising shed type. 24 inches Ins (60cm) of fabric width.	Pcs	1:1	√	√	√
4.	Floor loom	Wooden with 4 to 8 shafts Raising shed type. 36 in (90cm) wide.	Pcs	1:1			√
5.	Warping machine	Sectional warping and leasing stand	Pcs	1:4		√	√
6.	Warping mill	Floor/table type Capacity 2 to 4 meters long.	Pcs	1:4	√	√	√
7.	Creel	V shaped creel 360 bobbins capacity	Pcs	1:4			√
8.	Charkha	Winding charkha for bobbin and pin winding manual/electric operated.	Pcs	1:2	√	√	√
9.	Hank winder	12 hanks capacity winding.	Pcs	1:2	√	√	√
10.	Skein winder	Adjustable with capacity of 40 to 60 in (102 – 150cm) width.	Pcs	1:4	√	√	√
11.	Designing table	Wooden table top 60 cm x 80 cm	Pcs	1:4	√	√	√
12.	Wardrobe	Standard size double door with partitions	Pcs	1:8	√	√	√
13.	Inspection table	Formica table top 60 cm x 100 cm x 1m height	Pcs	1:4		√	√

B: TOOLS

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
1.	Healds	Healds 12 inches long wire type.	Set	1:1		√	√
2.	Reeds	Steel reeds 66 - 76 inches assorted counts	Pcs	1:1		√	√
3.	Shuttles	Assorted boat and flat shuttles of 4 to 6 in (10 to 15cm) long.	Pcs	2:1	√	√	√
4.	Pirns	Wooden pirns 6 to 7 inches (15 to 18cm) long	Pcs	2:1		√	√
5.	Hooks	Drafting and denting hooks	Pcs	2:1		√	√
6.	Reed brush	Glass crayon	Pcs	1:2		√	√
7.	Bobbins	Warp bobbin with wires	Set	1:1		√	√
8.	Pick glass	Counting glass (1 inches x ½ inches x ¼ inches)	Pcs	1:1		√	√
9.	Leather	Leather strap for pokers	Mtr	1:1		√	√
10.	Iron bar	– Round iron bar 16mm x 76 inches long – Round iron bar 16mm x 66 inches long	Pcs	1:4		√	√
11.	Raddle	Comb like device used for spread the warp truing warp preparation	Pcs	1:4		√	√
12.	Swift	Swift used for unaiding dyed hecks	Pcs	1:4	√	√	√
13.	Denting hooks	Threading yarn through dent	Pcs	1:2		√	√
14.	Reed hook	Threading yarn through read wire	Pcs	1:4		√	√
15.	Tape measure	Fibre cloth 150cm type	Pcs	1:1	√	√	√
16.	Scissors	Yarn scissors/ tweezers.	Set	1:2	√	√	√
17.	Drawing set	Mathematical	Set	1:1	√	√	√
18.	Weighing scale	20kgs	Pcs	1:10	√	√	√
19.	Ruler	50cm plastic, metal or wooden.	Pcs	1:1	√	√	√
20.	Weavers Bench	Wooden: W 30 x L 90 x H 60 cm.	Pcs	1:1	√	√	√

BASIC TOOLS AND EQUIPMENT FOR BASIC KNITTING (FOR 16 TRAINEES)

A: EQUIPMENTS

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
1.	Flat-Bed knitting machine	Model <i>Empisal Knitmaster</i> , manual /electric flatbed knitting machine complete with accessories. 321,322,323, 360N.	Pcs	1:1	√	√	
2.	Circular knitting machine.	Single track circular knitting machine complete with accessories	Pcs	1:8		√	√
3.	Ball winder	For knitting yarns Manual / electric	Pcs	1:4	√	√	√
4.	Over lock sewing machine	semi industrial	Pcs	1:8	√	√	√
5.	Straight Bar Knitting machine	Medium/High speed straight bar knitting machine complete accessories.	Pcs	1:8		√	√
6.	Oil Lubricating gun	Volume: 500mls	Pcs	1:4	√	√	√
7.	Cutting table	Wooden, 3m x 15m	Pcs	1:4	√	√	√
8.	Tension device	Manually operated	Pkt	1:1	√	√	√
9.	Cloth cutter	Small size electric type	Pcs	1:4	√	√	√
10.	Sewing machine	High speed – semi industrial	Pcs	1:8		√	√
11.	Knitting swifts	Manually operated	Pcs	1:4	√	√	√
12.	Digital counter	<ul style="list-style-type: none"> • Yarn speed. • Yarn length 	Pcs	1:4	√	√	√
13.	Iron	Electrical steam/ charcoal iron	Pcs	1:4	√	√	√
14.	Warp knitting machine	Semi - industrial	Pcs	1:4		√	√

B: TOOLS

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
1.	Crochet	Metal/wooden knitting pins	Pair	1:1	√		
2.	Pattern cards	Plastic sheet type	Pcs	1:1		√	√
3.	Weights	Metal assorted weights - maximum 5kgs	Set	1:1	√	√	√
4.	Tool Box	Steel box containing spanners, screw drivers, mallet, hammer. Allen keys, pliers nose pliers	Set	1:1	√	√	√
5.	Blackboard	Medium size	Pcs	1:16	√	√	√
6.	White board	Medium size	Pcs	1:16	√	√	√
7.	Flipchart board	Medium size	Pcs	1:16	√	√	√
8.	Overhead projector	Small size portable	Pcs	1:16	√	√	√
9.	Multimedia kit	CD-ROM, DVD,	Set	1:16	√	√	√
10.	Scissors	9" and 12" tailor scissors	Pcs	1:2	√	√	√
11.	Design Patterns	Manila sheets – large, medium, small.	Pcs	1:4		√	√
12.	Measuring tape	Plastic –1.5 metres length	Pcs	1:1	√	√	√
13.	Sewing needle	Stainless steel, assorted sizes	Pkt	1:1	√	√	√
14.	Needle guide	Chrome plated metal	Pcs	1:1	√	√	√
15.	Needle threader	Fine metallic wire threader	Pcs	1:1	√	√	√
16.	Pattern wheel	Metal.	Pcs	1:4		√	√
17.	Pattern drum	Metal	Pcs	1:4		√	√
18.	Ruler	Steel rule, 50 cm	Pcs	1:4	√	√	√
19.	Brushes	Sable hair brushes, 0.5"- 3" for dust cleaning	Set	1:1	√	√	√
20.	Dust mask	Plastic type with a fabric filter.	Pcs	1:1	√	√	√
21.	Magnifying glass	1 square inches magnifying glass for pick course count	Pcs	1:1		√	√
22.	Ironing table	L 150cm W 50cm H 100cm	Pcs	1:4	√	√	√
23.	Pins	Drawing pins	Box	1:1	√	√	√
24.	Pegs	Plastic or wooden cloth pegs	Doz	1:1	√	√	√

BASIC TOOLS AND EQUIPMENT FOR LEATHER GOODS - (16 TRAINEES)

A. EQUIPMENT

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
1.	Skiving machine	<ul style="list-style-type: none"> • Top and bottom feed • Skive up to 0.5 kg • Servo motor with adjustable speed • Accessories table skiving blade and motor 	Pcs	1: 8	√	√	√
2.	Sewing machine	Flat bed <ul style="list-style-type: none"> • Maximum stitch length 5mm, • Maximum sewing speed 3000spm, • Height of presser foot lifter Hand 7mm/knee 13mm, • Accessories: table, motor. 	Pcs	1:1	√	√	√
		Post bed <ul style="list-style-type: none"> • Maximum stitch length 5mm, • Maximum sewing speed 3000 spm, • Height of presser foot lifter Hand 7mm/knee 13mm, • Accessories: table. motor, 	Pcs	1: 16	√	√	√
		Zigzag <ul style="list-style-type: none"> • Maximum sewing speed 2,800 spm per minute, • Maximum stitch length 4.2mm, • Zigzag width of thread maximum 5mm, • Accessories: table, motor. 	Pcs	1: 16	√	√	√
		Cylinder arm <ul style="list-style-type: none"> • Maximum stitch length 5mm, • Maximum sewing speed 3000spm, • Height of presser foot lifter Hand 7mm/knee 13mm, 	Pcs	1: 16	√	√	√
3.	Rivet/ eyelet fixing machine	Hand device (Manual) with detachable accessories mounted on workbench	Pcs	1: 8	√	√	√
4.	Roughing machine	Bottom roughing machine with <ul style="list-style-type: none"> • Two stations • Shaft made of alloy materials 	Pcs	1: 16	√	√	√

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
		<ul style="list-style-type: none"> Dust collector Size 118X130X125cm 					
5.	Pressing machine	Sole pressing machine using air pressure from compressor	Pcs	1: 16	√	√	√
6.	Oven	Glue activating machine using infrared bulb for heating	Pcs	1: 16	√	√	√
7.	Cooker	Gas/Kerosene/ charcoal cooker	Pcs	1: 8	√	√	√
8.	Work bench	Wooden bench 1800x106cm with height of 75 CM	Pcs	1: 4	√	√	√
9.	Air compressor	3 phase working pressure 10 bar, horse power	Pcs	1: 16	√	√	√
10.	Soldering gun	<ul style="list-style-type: none"> Trigger style/pistol grip style Dual heat gun Produce 100 – 140wt Power 230V 	Pcs	1:16	√	√	√
11.	Bench Vice	<ul style="list-style-type: none"> Jaw width 120mm Capacity 150mm Jaw depth 80mm, anvil size 75x70mm, weight 10 kg 	Pcs	1:4	√	√	√

B. TOOLS

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
1.	Oil stone	Sharpening stone- medium size	Pcs	1:1	√	√	√
2.	Plastic blocks	Cutting block plastic size (250mm x 2000 x 1500mm)	Pcs	1:4	√	√	√
3.	Stab – in (marking awl)	<ul style="list-style-type: none"> Length of blade 30mm Length of handle 55mm 	Pcs	1:1	√	√	√
4.	Brush	Enamel brush size 10mm with wooden handle	Pcs	1:1	√	√	√
		Enamel brush size 20mm with wooden handle	Pcs	1:1	√	√	√
5.	Glue container	0.25 litres container plastic	Pcs	1:1	√	√	√
6.	Sitting stools	Metal framed adjustable height	Pcs	1:1	√	√	√
7.	Ruler	Steel rule 50cm long	Pcs	1:1	√	√	√
		Wooden/plastic size 30cm long	Pcs	1:1	√	√	√
8.	Hand stitching needles	Moccasin needles	Pcs	1:1	√	√	√
9.	Punch dies	Metal dies	Pcs	1:1	√	√	√
10.	Punch	Star levelling punch	Pcs	1:1	√	√	√
11.	Punch	Revolving punch with assorted sizes	Pcs	1:8	√	√	√
12.	Dividers	Steel divider type	Pcs	1:1	√	√	√
13.	Lasting stand	Metal shoe lasting stand	Pcs	1:1	√	√	√
14.	Pincers	Shoe lasting pincers with curved tip	Pcs	1:1	√	√	√
15.	Hammer	Wooden handle, weight with handle 675 gm, diameter of face 28 mm.	Pcs	1:1	√	√	√
		Wooden handle weight with handle 300 gm, diameter of face 21mm	Pcs	1:1	√	√	√
16.	Crew punches	slot punches for buckets	Pcs	1:8	√	√	√
17.	Plough gauge	for belt cutting	Pcs	1:16	√	√	√
18.	Pricking wheel	small steel wheel	Pcs	1:1	√	√	√
19.	Burnisher	smooth piece of wood for burning leather	Pcs	1:1	√	√	√
	Scissors	Heavy duty shear 30cm long	Pcs	1:1	√	√	√

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
20.		Pinking shear medium size	Pcs	1:1	√	√	√
		Curved scissors medium size	pcs	1:1	√	√	√
21.	Harness needles	Cobbler harness needle	Pcs	1:1	√	√	√
22.	Measuring tape	Fibre cloth tape 150cm long	Pcs	1:1	√	√	√
23.	Leather horse	Wooden racks	Pcs	1:8	√	√	√
24.	Leather gauge	Thickness measuring gauge	Pcs	1:8	√	√	√
25.	Screw driver	<ul style="list-style-type: none"> Six (6) flat, nickel plated screw driver with plastic handle Star, nickel plated screw drivers with plastic handle 	Set	1:4	√	√	√
26.	Allen keys	Assorted	Set	1:16	√	√	√
27.	Shoe last	Shoe last plastic, v-shaped (hinge lasts)	Pair	1:1	√	√	√
28.	Shoe horn	Steel shoe horn	Pcs	1:4	√	√	√
29.	Nail puller (Shoe tack remover)	<ul style="list-style-type: none"> Wooden handle 55mm Steel blade with "Y" tip 50mm 	Pcs	1:1	√	√	
30.	File (tupa)	Steel rasper 20cm	Set	1:4	√	√	√
31.	Square	Steel, L-shape Size 60 cm x 60 cm	Pcs	1:4	√	√	√
32.	Edge beveller	Edge finishing tool	Pcs	1:1	√	√	√
33.	Stamping tools	For decorating or embossing the leather	Set	1:8	√	√	√
34.	Carving tools	Set of tools for carving	Pcs	1:4	√	√	√
35.	Thimble	Metal type-open tip	pcs	1:1	√	√	√
36.	First Aid Kit	Standard Box with all accessories	Pcs	1:16	√	√	√
37.	Fire Extinguisher	Dry Powder	Pcs	1:16	√	√	√
		Sand	Pcs	1:16	√	√	√
		Foam	Pcs	1:16	√	√	√
		Carbon dioxide	Pcs	1:16	√	√	√
38.	Safety Goggles	Plastic type	pcs	1:4	√	√	√
39.	Dust mask	Plastic type	pcs	1:4			
40.	Needle Cushion	Cloth type (for moccasin needle)	pcs	1:1	√	√	√
41.	French curves	Plastic type	pcs	1:1	√	√	√
42.	Safety boots	Heavy leather upper with rubber sole	Pair	1:1	√	√	√
43.	TV set	➤ Flat screen 29 inch	Set	1:16			√

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
		<ul style="list-style-type: none"> ➤ DVD ➤ Video ➤ Projector 					
44.	Leather Goods catalogue	With illustrations and colour pictures	pcs	1:4			
45.	Fashion magazines	With details and colour pictures	Pcs	1:4			√
46.	Rope	Sisal/thick nylon	Roll	1:4			√
47.	Container	Plastic volume 20litres	Pcs	1:4			√
48.	Wooden stackers	Wooden rack with partitions	Pcs	1:4			√
49.	Hard broom	Medium size with wooden handle	Pcs	1:4			√
50.	Gunny bags	Jute/sisal materials	Pcs	1:4			√
51.	Salt containers	Plastic volume 10ltrs	Pcs	1:4			√
52.	Bucket	Plastic volume 20 ltrs	Pcs	1:4			√
53.	Tannery beams	Wooden racks with hot control standard	Pcs	1:8			√
54.	Hose pipe	Size ¾ inch PVC material 30m	Roll	1:8			√
55.	Knives	Kitchen knife <ul style="list-style-type: none"> • Stainless steel Plastic/wooden handle 	Pcs	1:4			√
56.		Hand leather cutting knife <ul style="list-style-type: none"> • 10mm blade • Length 200mm • Stainless steel 		1:4			√
57.		Tanning knife <ul style="list-style-type: none"> • Blunt tip, keen edge 447mmx47mm 	Pcs	1:4			√
58.		Fleshing knife <ul style="list-style-type: none"> • Stainless steel, two handles 300x225mm 	Pcs	1:4			√
59.		Flaying knife <ul style="list-style-type: none"> • Stainless steel, curved tip 	Pcs	1:4			√
60.	Cooking pot	Aluminium/stainless steel 45CM diameter	Pcs	1:8			√
61.	Drying boards	Card boards 2m x3m	Pcs	1:4			√
62.	Cooking pestle	Kitchen size plastic/wooden	Pcs	1:8			√
63.	Handle bloom	Wooden/ plastic with handle	Pcs	1:4			√

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
64.	Nylon sheet	Nylon 2m square	Pcs	1:4			√
65.	Glazing glass (fitted with) machinery	Cylindrical glass 2 inches diameter 6 inch long	Pcs	1:16			√
66.	Digital Camera	With connectivity to computer	Pcs	1:16			√
67.	Measuring pattern	Hard carton (manila)	Pcs	1:4			√
68.	Computer	Desk top	Set	1:4			√
69.	Sanding Machine	<ul style="list-style-type: none"> • Withal standard accessories and continuous abrasive beltsrous(assorted grit) • Surface belt sander • Table sizes 2000mm x 600mm • Cross travel of table 600 mm • Rise adjustment 0 – 700 mm • Sanding belt size 120 mm x 4900 mm • Rotted Motor power kW 1.5 • Belt roller diameter 150 mm 	Pcs	1:16			√
70.	Ladder	Plastic/wooden collapsible 3m	Pcs	1:16	√	√	√
71.	Safety Signs	Stickers/posters with well-defined illustration images	Pcs	1:8	√	√	√
72.	Fire alarm	Electric bell/siren	Pcs	1:16	√	√	√
73.	Notice Board	Jute/Hessian cloth 1m x 1m	Pcs	1:16			√
74.	Chairs	Wooden/steel Size 45cm x 45cm	Pcs	1:1	√	√	√
75.	Desks	Wooden/steel Size 60 cm x 60 cm height 75 cm	Pcs	1:1	√	√	√

BASIC TOOLS AND EQUIPMENT FOR LABORATORY ASSISTANT (1:20 TRAINEES)

S/N	ITEMS	SPECIFICATIONS	UNIT/ PACK	RATIO	LEVEL		
					I	II	III
1.	Microscope	(a) Binocular microscope <ul style="list-style-type: none"> • Objective lens 4x,10x,40x and 100x • Power 220 to 240V 	Pcs	1:10	√	√	√
		(b) Light microscope <ul style="list-style-type: none"> • Magnification x10,x20,x40 and x 100 objective lens • Power 220 to 240V 	Pcs	1:10	√	√	√
		(c) Stereo zoom microscope <ul style="list-style-type: none"> • Binocular • Power: 230 watts • Total magnification x10 to x40 zoom 	Pcs	1:10	√	√	√
2.	Thermo hydrometer	<ul style="list-style-type: none"> • High humidity • Dimension (mm) 196x80x60 • Weight: 425 gram 	Pcs	1:20	√	√	√
3.	Spectrophotometer	<ul style="list-style-type: none"> • Wavelength range: 340 to 950 nanometer • Transmittance: 0 to 100.0%T • Absorbance: 0 to 1.95A • Concentration: 0 to 1999C • Power: 110 Volts 	Pcs	1:10	√	√	√
4.	Autoclave	<ul style="list-style-type: none"> • With its all accessories • Capacity: 30 liters • Stainless steel • Power: 230 Volts 	Pcs	1:20	√	√	√
5.	Water bath	<ul style="list-style-type: none"> • Capacity: 14 liters • Dimension: 325x300x150 millimeters • Power: 1000 Watts 	Pcs	1:20	√	√	√
6.	Water distiller machine	<ul style="list-style-type: none"> • Capacity: 30 liters per 24 hours • Power: 230 Volts 	Pcs	1:20	√	√	√
7.	pH meter	<ul style="list-style-type: none"> • Range: 2.00 to 19.00 • Temperature: 5.0 to 105.0°C 	Pcs	1:10	√	√	√

S/N	ITEMS	SPECIFICATIONS	UNIT/ PACK	RATIO	LEVEL		
					I	II	III
8.	Combined pH and conductivity meter	<ul style="list-style-type: none"> Range pH: 0.00 to 14.00 Temperature: 0.0 to 60.0°C Power: 230Volts 	Pcs	1:20	√	√	√
9.	Balance	(a) Light emitting diode display <ul style="list-style-type: none"> Maximum 520 grams to minimum 0.01 grams Power 220 Volts 	Pcs	1:20	√	√	√
		(b) Digital computing scale <ul style="list-style-type: none"> Maximum: 40 kilograms Minimum: 200 grams Power: 220 Volts 	Pcs	1:20	√	√	√
		(c) Free pocket weighing scale <ul style="list-style-type: none"> Temperature: 0-40°C Weight: 78 grams Size: 100x72x12.8 millimeters 	Pcs	1:5	√	√	√
10.	Washing machine	<ul style="list-style-type: none"> Washing speed: 52 rotation per minute Dehydration: 500±20 rotation per minutes Drum volume: 61 liters Drum diameter: 520 millimeters Power: 240 Volts 	Pcs	1:20	√	√	√
11.	Lock stick machine	(a) domestic <ul style="list-style-type: none"> Sewing speed: 500 rotation per minute (r.p.m.) Presser foot lift 	Pcs	1:20	√	√	√
		(b) industrial <ul style="list-style-type: none"> Maximum sewing speed: 500 rotation per minute (r.p.m.) Maximum sewing thickness: 7 millimeters Stitch length: 5 millimeters Power: 250 Watts 	Pcs	1:20	√	√	√
12.	Fume cupboard	<ul style="list-style-type: none"> Dimension: 1800x850x2350 millimeters Airflow: 18000-2500 meter cubic per second 	Pcs	1:20	√	√	√

S/N	ITEMS	SPECIFICATIONS	UNIT/ PACK	RATIO	LEVEL		
					I	II	III
13.	Iron	(a) industrial iron <ul style="list-style-type: none"> • Weight:1275 grams • Power: 230 Volts 	Pcs	1:10	√	√	√
		(b) domestic iron <ul style="list-style-type: none"> • Water tank capacity: 300 milliliter • Power: 220-240 Volts 	Pcs	1:5	√	√	√
14.	Cleaning machine	<ul style="list-style-type: none"> • Steam type • Power 1.2 kilowatts • Motor power: 2 kilowatts • Water consumption: 1 liter per minutes 	Pcs	1:10	√	√	√
15.	Moisture meter	<ul style="list-style-type: none"> • Moisture content 0 – 50% • Temperature: (-10) to 60°C • POWER: 230 Volts 	Pcs	1:10	√	√	√
16.	Air conditioner	<ul style="list-style-type: none"> • Split unit • Cooling: 9000 British thermal unit (BTU) • Refrigerant: R-22 • POWER:240V • Heating capacity: 10700 British thermal unit (BTU) 	Pcs	1:5	√	√	√
17.	Stroboscope	<ul style="list-style-type: none"> • 50 to 25000 flashes per minutes • Power: 220Volts Alternating Current	Pcs	1:10	√	√	√
18.	Yarn tension meter	<ul style="list-style-type: none"> • Digital • Deviation: 0.1 grams • Range: 0-300 grams • Power:220Volts 	Pcs	1:10	√	√	√
19.	Tachometer	<ul style="list-style-type: none"> • Range: 2.5-99999 Revolution per minutes (r.p.m.) • Power:220Volts 	Pcs	1:10	√	√	√
20.	Crock meter	<ul style="list-style-type: none"> • Temperature range: • Diameter of rubbing finger: 16 millimeters and 25 	Pcs	1:10	√	√	√

S/N	ITEMS	SPECIFICATIONS	UNIT/ PACK	RATIO	LEVEL		
					I	II	III
		<ul style="list-style-type: none"> Size of crocking cloth:(5x5) centimeters and (7x7) centimeters Dimension: 600 (width) x 190 (depth) x 200 (height) millimeters 					
21.	Perspirometer	<ul style="list-style-type: none"> Stainless steel Dimension: 225 (length) x 72 (width) x 182 (height) millimeters Test specimen: 5 kilogram 	Pcs	1:10	√	√	√
22.	Thermometer	(a) Type: alcohol <ul style="list-style-type: none"> Range: -10 to 110 °C 	Pcs	1:1	√	√	√
		(b) General purpose <ul style="list-style-type: none"> Range -10 to 110°C Red spirit filled, amber graduations White baked 	Pcs	1:1	√	√	√
23.	Water storage tank	<ul style="list-style-type: none"> Capacity: 5000 liters Material: polythene 	Pcs	1:20	√	√	√
24.	Laboratory trolley (wagon)	<ul style="list-style-type: none"> Shelves: 3 Outside dimension: 925x640x870 millimeters (LxWxH) Platform dimension: 800x520 millimeters (LxW) 	Pcs	1:8	√	√	√
25.	Shakers	<ul style="list-style-type: none"> Orbital shaker Dimension: 360 (length) x 400(depth)x270(height) millimeters Speed range: 80-800 Maximum load:10 kilogram Power:230Volts 	Pcs	1:10	√	√	√
26.	Stirrer	(a) Magnetic with heating <ul style="list-style-type: none"> Digital display Speed: 100 to 1400 revolution per minute Temperature: maximum 300°C to minimum 0°C Power:240V 	Pcs	1:8	√	√	√
27.	Tester	(a) Sublimation fastness tester <ul style="list-style-type: none"> Maximum temperature: 250°C 	Pcs	1:10	√	√	√

S/N	ITEMS	SPECIFICATIONS	UNIT/ PACK	RATIO	LEVEL		
					I	II	III
		<ul style="list-style-type: none"> Dimension: 38(width) x34(depth)x28(height) centimeters Power:220Volts 					
		(b) Twist tester <ul style="list-style-type: none"> Length: 5-500 millimeters 	Pcs	1:5	√	√	√
		(c)Washing fastness tester <ul style="list-style-type: none"> Maximum temperature 90°C 	Pcs	1:10	√	√	√
		(d) Stiffness tester <ul style="list-style-type: none"> Angle of inclination: 41.5° Dimension: 275(width)x140(depth)x150(height) millimeters 	Pcs	1:10	√	√	√
		(e) Digital pilling tester <ul style="list-style-type: none"> Dimension:813(width)x482(depth) x508(height) millimeters 	Pcs	1:10	√	√	√
		(f) Digital bursting strength <ul style="list-style-type: none"> Pressure:1000 Power:230Volts 	Pcs	1:10	√	√	√
28.	Refrigerator	<ul style="list-style-type: none"> Capacity:28-44 1 liters Shelves: 2-3 Power:230 Volts 	Pcs	1:20	√	√	√
29.	Extensioner	<ul style="list-style-type: none"> Fabric extensioner Dimension:61x10x12 centimeters Weight: 20.500 kilograms 	Pcs	1:20	√	√	√
30.	Hot plates	<ul style="list-style-type: none"> Material: aluminum/silicon alloy Power: 240Volts Maximum temperature: 300°C 	Pcs	1:10	√	√	√
31.	Tensile testing machine	<ul style="list-style-type: none"> Range: 1-1000 Neutrons Power: 230volts Semi auto 	Pcs	1:20	√	√	√
32.	Template	<ul style="list-style-type: none"> Shrinkage template Dimension of the template: 500x500x6 millimeters Dimension of the scale: 445 x 60x5 millimeters 	Pcs	1:20	√	√	√
33.	Gauge	(a) Micrometer screw <ul style="list-style-type: none"> Capacity: 0-25 millimeters 		1:20	√	√	√
		(b) Sewing gauge	Pcs	1:5	√	√	√

S/N	ITEMS	SPECIFICATIONS	UNIT/ PACK	RATIO	LEVEL		
					I	II	III
		<ul style="list-style-type: none"> 6 inches aluminium ruler with a slider 					
		(c) Digmatic micrometer <ul style="list-style-type: none"> Range: 0 – 25 millimeters 	Pcs	1:5	√	√	√
34.	Calipers	(a) Vernier calipers <ul style="list-style-type: none"> 5 inches scale Vernier scale 1/128 inches 	Pcs	1:1	√	√	√
		(b) Digital caliper <ul style="list-style-type: none"> Range: 0- 150 millimeters Resolution: 0.01 millimeters 	Pcs	1:5	√	√	√
35.	Cylinders	(a) Measuring cylinder Class A <ul style="list-style-type: none"> Pyrex borosilicate glass with spout Size: <ul style="list-style-type: none"> 5 milliliters 10 milliliters 25 milliliters 50 milliliters 100 milliliters 250 milliliters 500 milliliters 1000 milliliter 2000 milliliters 	Pcs	1:1	√	√	√
			Pcs	1:1	√	√	√
			Pcs	1:1	√	√	√
			Pcs	1:1	√	√	√
			Pcs	1:5	√	√	√
			Pcs	1:5	√	√	√
			Pcs	1:5	√	√	√
			Pcs	1:10	√	√	√
			Pcs	1:10	√	√	√
				(b) Measuring, stoppered Class A <ul style="list-style-type: none"> Size: <ul style="list-style-type: none"> 50 milliliters 100 milliliters 250 milliliters 500 milliliters 	Pcs	1:1	√
			Pcs	1:1	√	√	√
			Pcs	1:1	√	√	√
			Pcs	1:5	√	√	√
36.	Beakers	(a) Pyrex borosilicate glass with spout Class A <ul style="list-style-type: none"> 50 milliliters 100 milliliters 250 milliliters 500 milliliters 1000 milliliters 	Pcs	1:1	√	√	√
			Pcs	1:1	√	√	√
			Pcs	1:1	√	√	√
			Pcs	1:5	√	√	√
			Pcs	1:10	√	√	√
				(b) Plastic beaker spouted mouth with handle <ul style="list-style-type: none"> 500 milliliters 1000 milliliters 	Pcs	1:5	√
			Pcs	1:5	√	√	√
			Pcs	1:10	√	√	√

S/N	ITEMS	SPECIFICATIONS	UNIT/ PACK	RATIO	LEVEL				
					I	II	III		
		2000 milliliters	Pcs	1:10	√	√	√		
37.	Desiccators	Pyrex or borosilicate glass Class A Size of diameter: <ul style="list-style-type: none"> • 150 millimeters • 200 millimeters • 250 millimeters 	Pcs Pcs Pcs	1:5 1:5 1:5	√ √ √	√ √ √	√ √ √		
38.	Flask	(a) Conical flask Class A Pyrex or borosilicate <ul style="list-style-type: none"> • 250 milliliters • 500 milliliters • 1000 milliliters 	Pcs Pcs Pcs	1:1 1:1 1:1					
		(b) Volumetric flask Class A Flat bottomed <ul style="list-style-type: none"> • 50 milliliters • 100 milliliters • 250 milliliters • 500 milliliters • 1000 milliliters 	Pcs Pcs Pcs Pcs Pcs	1:1 1:1 1:1 1:1 1:1	√ √ √ √ √	√ √ √ √ √	√ √ √ √ √		
		(c) Quick fit flask Class A <ul style="list-style-type: none"> • borosilicate glass • round bottomed • Neck size:29/32 • Size: <ul style="list-style-type: none"> • 250 milliliters • 500 milliliters 	Pcs Pcs	1:1 1:1	√ √	√ √	√ √		
		39.	Condenser	<ul style="list-style-type: none"> • Borosilicate glass Class A • Combined with distilling link • Length: 250 milliliters • Size: 29/32 	Pcs	1:1	√	√	√
		40.	Heating mantles	<ul style="list-style-type: none"> • Soxhlet extractor:500 milliliters • Capacity: 3recesses • Power:1000 watts • Volt: 230 volts 	Pcs	1:1	√	√	√
		41.	Table	<ul style="list-style-type: none"> • Ironing table • Surface: 1100x320 milliliters 	Pcs	1:5	√	√	√
		42.	Compass	Sharp pin arm with marker holder	Pcs	1:5	√	√	√

S/N	ITEMS	SPECIFICATIONS	UNIT/ PACK	RATIO	LEVEL		
					I	II	III
43.	Ruler	(a) Curved ruler 60 inches	Pcs	1:1	√	√	√
		(b) Steel ruler 100 centimeters	Pcs	1:1	√	√	√
44.	Test tubes	• Pyrex/borosilicate glass Class A					
		• Size: 10x75 milliliters	Pcs	1:1	√	√	√
		12x75 milliliters	Pcs	1:1	√	√	√
		12x100 milliliters	Pcs	1:1	√	√	√
		16x125 milliliters	Pcs	1:1	√	√	√
45.	Pipettes	Glass material	Pcs	1:1	√	√	√
		(a) Bulb class A					
		Size: 1 milliliters	Pcs	1:1	√	√	√
		5 milliliters	Pcs	1:1	√	√	√
		10 milliliters	Pcs	1:1	√	√	√
		25 milliliters	Pcs	1:1	√	√	√
		50 milliliters	Pcs	1:1	√	√	√
		100 milliliters	Pcs	1:1	√	√	√
		(b) Hall class A					
		Size: 1 milliliters	Pcs	1:1	√	√	√
5 milliliters	Pcs	1:1	√	√	√		
10 milliliters	Pcs	1:1	√	√	√		
25 milliliters	Pcs	1:1	√	√	√		
50 milliliters	Pcs	1:1	√	√	√		
100 milliliters	Pcs	1:1	√	√	√		
46.	Pipette filler	Plastic material with membrane filter	Pcs	1:1	√	√	√
47.	Petri dishes	• Capacity:94 millimeters diameter :100 millimeters Lid diameter Glass materials class A	Pcs	1:1	√	√	√
48.	Motor and pestle	Porcelain material Capacity:220 milliliters Diameter: 125 millimeters	Pcs	1:1	√	√	√
49.	Brushes	• Cleaning glass ware brushes • Bristle or nylon head with fan shaped end and wire handle	Pcs	1:1	√	√	√
50.	Bottle	• Wash bottle	Pcs	1:1	√	√	√
		• Capacity: 500 milliliters					
51.	Filter papers	• Diameter	Pcs	1:1	√	√	√
		• 70 centimeters	Pcs	1:1	√	√	√

S/N	ITEMS	SPECIFICATIONS	UNIT/ PACK	RATIO	LEVEL		
					I	II	III
		<ul style="list-style-type: none"> 90 centimeters 160 centimeters 	Pcs	1:1	√	√	√
			Pcs	1:1	√	√	√
52.	Clamp	<ul style="list-style-type: none"> Aluminium alloy Three plong 	Pcs	1:1	√	√	√
53.	Burettes	<ul style="list-style-type: none"> Borosilicate glass class A Straight polythene cork Size: 25 millimeters 50 millimeters 100 millimeters 	Pcs Pcs Pcs	1:1 1:1 1:1			
54.	Spatula	<ul style="list-style-type: none"> Stainless steel Length: 150 millimeters 	Pcs	1:1 1:1	√ √	√ √	√ √
55.	Gloves	<ul style="list-style-type: none"> Medium Length: 24 centimeters Thickness: 10.3 millimeters 	Box	1:20	√	√	√
56.	Goggles	<ul style="list-style-type: none"> Polycarbonate frame Clear materials 	Pcs	1:1	√	√	√
57.	Laboratory coats	(a) Plastic materials	Pcs	1:1	√	√	√
		(b) Cotton materials	Pcs	1:1	√	√	√
58.	Stands	(a) Retort stands <ul style="list-style-type: none"> Acrylic paint Base with acrylic blue/white paint Rod size: 12.5x1000 millimeters 	Pcs	1:1	√	√	√
		(b) Ring stands <ul style="list-style-type: none"> Stainless steel Diameter: 3 inches maximum 	Pcs	1:1	√	√	√
59.	Gauze	<ul style="list-style-type: none"> Wire gauze Dimension: 200x125 millimeters 	Pcs	1:1	√	√	√
60.	Mask	<ul style="list-style-type: none"> Mouth mask Acid, gas resistance 	Pcs	1:1	√	√	√
61.	Tongs	<ul style="list-style-type: none"> Nickel plated steel Length: 20 inches 	Pcs	1:1	√	√	√
62.	Brushes	(a) Stand brush <ul style="list-style-type: none"> Soft bristles, 	Pcs	1:1	√	√	√
		(b) Swivel-head bottle brush <ul style="list-style-type: none"> Length: 420 millimeters 	Pcs	1:1	√	√	√

S/N	ITEMS	SPECIFICATIONS	UNIT/ PACK	RATIO	LEVEL		
					I	II	III
63.	Shears	<ul style="list-style-type: none"> Dress maker shear Size: <ul style="list-style-type: none"> 8 inches 9 inches 10 inches 	Pair	1:1	√	√	√
64.	Scissors	<ul style="list-style-type: none"> Stainless steel 	Pair	1:1	√	√	√
		<ul style="list-style-type: none"> Length: 8 inches 9 inches 	Pair	1:1	√	√	√
65.	Crucibles	<ul style="list-style-type: none"> Porcelain materials Height: 26-29 milliliters 	Pcs	1:1	√	√	√
66.	Rack	(a) Test tube rack <ul style="list-style-type: none"> Stainless steel 36 holes x13 millimeters diameter Capacity: 20-25 millimeters diameter 	Pcs	1:1	√	√	√
		(b) Draining rack <ul style="list-style-type: none"> For arrow mounted or small vessel Length:120 millimeters 	Pcs	1:1	√	√	√
67.	Framing square	<ul style="list-style-type: none"> Steel material 90 degree metal square 	Pcs	1:10	√	√	√
68.	Comb sorter	Cotton materials or wool	Pcs	1:10	√	√	√
69.	Chart	<ul style="list-style-type: none"> Fibre wall chart Paper materials 	Pcs	1:20	√	√	√
70.	Colour matching cabinet	Inclination angle: 45 degree	Pcs	1:10	√	√	√
71.	Bin	<ul style="list-style-type: none"> Dust bin Foot operated floor standing Capacity: 5-10 litres 	Pcs	1:10	√	√	√
72.	White board	<ul style="list-style-type: none"> Fixed board Dimension: 300 x150 centimeters 	Pcs	1:20	√	√	√
73.	Aprons	<ul style="list-style-type: none"> Heavy duty Thickness: 20 millimeters 	Pcs	1:1	√	√	√
74.	Computer set	<ul style="list-style-type: none"> Size: 21 inches Hard disc capacity: 500 gigabytes Duo core processor: 2.0 RAM: 8 GB 	Set	1:10	√	√	√
75.	Stool	<ul style="list-style-type: none"> Plywood materials 	Pcs	1:1	√	√	√

S/N	ITEMS	SPECIFICATIONS	UNIT/ PACK	RATIO	LEVEL		
					I	II	III
		<ul style="list-style-type: none"> • Seat height: 50x71 centimeters • Plated tubular steel 					
76.	Furniture	(a) Cabinet Standing height wall <ul style="list-style-type: none"> • Assemblies with sink • Dimension: (width x height x depth) 366x92x76) centimeters • Four cabinet assembly with sink 	Pcs	1:5	√	√	√
77.	Centrifuge	<ul style="list-style-type: none"> • Maximum speed: 4,000 revolution per minute (r.p.m) • Maximum capacity: 4x190 milliliters • Power: 350/480Watts • Temperature range: -10°C to +40°C • Timer: 1 minute to 99 minute 	Pcs	1:10	√	√	√
78.	Gas cylinder	<ul style="list-style-type: none"> • Natural gas cylinders • Cylinder with all its accessories • Weight: 30 kilograms 	Pcs	1:10	√	√	√
79.	First Aid kit	<ul style="list-style-type: none"> • Kit with its accessories 	Pcs	1:10	√	√	√
80.	Fire extinguishers	<ul style="list-style-type: none"> • Weight: 9 kilograms • Carbon dioxide extinguishers • Dry powder extinguisher • Water type extinguisher • Water horse pipe • Fire blanket • Foam type extinguisher 	Pcs	1:10	√	√	√
81.	Furnace	<ul style="list-style-type: none"> • Capacity: 8 liter • Dimension: (170 x 270 x 170) millimeters • Power: 8000W • Temperature range: 0°C – 1600°C 	Pcs	1:20	√	√	√
82.	Funnel	<ul style="list-style-type: none"> • Pyrex borosilicate glass • Size: <ul style="list-style-type: none"> • 65 millimeters diameter • 80 millimeters diameter • 110 millimeters diameter 	Pcs	1:1	√	√	√

S/N	ITEMS	SPECIFICATIONS	UNIT/ PACK	RATIO	LEVEL		
					I	II	III
83.	Bottle	(a) Reagent bottle, Pyrex clear glass <ul style="list-style-type: none"> • Size: • 250 milliliters • 500 milliliters • 1000 milliliters 	Pcs	1:1	√	√	√
		(b) Amber coloured bottle (c)Size: <ul style="list-style-type: none"> • 250 milliliters • 500 milliliters • 1000 milliliters 	Pcs	1:1	√	√	√
84.	Rods	(a) glass rods Size: <ul style="list-style-type: none"> • 10 millimeters diameter 	Pcs	1:1	√	√	√
		(b) polypropylene rods <ul style="list-style-type: none"> • 10 millimeters diameter 	Pcs	1:1	√	√	√
85.	Extension cable	<ul style="list-style-type: none"> • Electric extension cable • Current: 13 Amperes • Voltage: 250 Volts • 5 holes 	Pcs	1:10	√	√	√

APPENDIX 2

SCHEMATIC DRAWINGS