# CBSE | DEPARTMENT OF SKILL EDUCATION

## CURRICULUM FOR SESSION 2021-2022

## MULTI SKILL FOUNDATION COURSE (CODE NO- 416)

### JOB ROLE: MULTI SKILL ASSISTANT TECHNICIAN

### CLASS – X

**INTRODUCTION:**

**Multi Skill Foundation Course (MSFC) -** The Multi-Skill Foundation Course curriculum is broken down into coherent parts known as Units. Each unit is further broken down into knowledge and skills on the basis of which evidence is to be provided by the learner and the evaluation is to be done by the teacher or trainer. "Multi-Skill Foundation Course" (MSFC) is revised version of pre-vocational program V-1 "Introduction to Basic Technology", being implemented in Maharashtra since 1987.

**Nature of the course:** The course is divided into four modules: Workshop & Engineering Techniques, Energy & Environment, Gardening, Nursery and Agriculture Techniques, Food Processing Techniques ($9^{th}$ class) / Personal Health & Hygiene ($10^{th}$ class)

The Engineering (material-joining, shaping and otherwise fabricating into usable articles, including housing) and Energy-Environment (application of electricity, non-conventional energy and systems, processes, and tools- computers, management techniques). It also covers basics of engineering and project management. Home-Health (related to human life), and Agriculture (Plant and animal kingdom) give the skills related to clothing food and health of human beings. Agriculture covers the skill needed for production and preservation of food of both plant and animal origin, including care of plants/crops.

**BENEFITS:**

1. Multi-skill nature of the program helps students to select choice of his/her future specialization. He/she is a jack of all skills and will be enabled to select one for his/her future.
2. Most importantly, the variety of experiences students gets during "Multi-Skill Foundation' training will stimulate their intellect. Multidisciplinary knowledge will help him to appreciate underlying principles and processes and apply that knowledge in new areas.
3. All ground level work activities need multi skills. For e.g. farmer need to have basic knowledge of electricity, food processing, agriculture and even construction. This helps him to become self-reliant under adverse conditions. A fabricator, who gets orders for construction of poultry, will be in better position to serve his client if he knows basics of poultry. This helps to develop such kinds of interdisciplinary approaches with appreciation for other fields.

**COURSE OBJECTIVES:**

On completion of the course, student should be able to:

- Apply effective oral and written communication skills to interact with people and customers;
- Demonstrate the knowledge of constructional details and working of soak pit, and why wet and dry garbage needs to be separated.
- Demonstrate knowledge of land preparation / pot filling for cultivating a crop either on a plot of land / terrace garden / in a pot

- Select healthy seeds for sowing; demonstrate the knowledge of basic seeds treatment.
- Demonstrate growing of one vegetable crop on a small plot / kitchen garden / terrace garden.
- Understand different breeds of animals – indigenous and breed variety.
- Determine age of the animal and their feed requirements.
- Demonstrate ability to estimate feed requirement, yield of the animal and its well-being (for any common animal/pet in the local area e.g. sheep, goat, poultry bird, cow/buffalo)
- Demonstrate soldering of basic electronics components using soldering iron.
- Maintenance of lead acid batteries, measuring its specific gravity.
- To demonstrate understanding of electricity consumption of various household electric fittings and kitchen equipment's and calculate monthly electricity unit's usage by a family.
- Demonstrate knowledge of electricity saving measures
- Demonstrate measurement capability using different measuring instruments such as meter tape, Vernier Calliper, and screw Gauge. Able to measure different jobs in the surrounding environment viz. furniture, building dimensions etc.
- Identify tools and equipment used in the Engineering workshop section.
- Demonstrate safe use and application of workshop tools and equipment.
- Install simple pipe line connection using PVC pipes, connectors and other plumbing accessories;
- Identify various tools and equipment required in the section and their usage.
- Demonstrate the understanding of safety measures required to be taken while using electrical and electronic tools and equipment.
- Perform various types of joints for joining electrical wires.
- Demonstrate basic knowledge of cooking and baking using a recipe with basic kitchen equipment.
- Demonstrate the knowledge of preserving foods using simple preservation techniques.
- Demonstrate and maintain personal hygiene& hygiene of cooking area
- Demonstrate safety measures to be observed in the kitchen.
- Understand concept of calories, calories in the locally available food, calories requirement of an adult and child.
- To be able to use & maintain different stoves viz. wick / pressure stove / LPG / smokeless Chula

**CURRICULUM:**

This course is a planned sequence of instructions consisting of Units meant for developing employability and Skills competencies of students of Class IX and X opting for Skills subject along with other subjects.

**The unit-wise distribution of hours and marks for Class 9 & 10 is as follows:**

# MULTI SKILL FOUNDATION COURSE (CODE NO- 416)
# CLASS – X (SESSION 2021-2022)

**Total Marks: 100 (Theory-50 + Practical-50)**

| | TERM | UNITS | NO. OF HOURS for Theory and Practical 200 | | MAX. MARKS for Theory and Practical 100 |
|---|---|---|---|---|---|
| **Part A** | **Employability Skills** | | | | |
| | **Term 1** | Unit 1 : Communication Skills-II | 10 | | 5 |
| | | Unit 2 : Self-Management Skills-II | 10 | | |
| | | Unit 3 : ICT Skills-II | 10 | | |
| | **Term 2** | Unit 4 : Entrepreneurial Skills-II | 15 | | 5 |
| | | Unit 5 : Green Skills-II | 05 | | |
| | | **Total** | **50** | | **10** |
| **Part B** | **Subject Specific Skills** | | **Theory (In Hours)** | **Practical (In Hours)** | |
| | **Term 1** | Unit 1: Workshop and Engineering Techniques | 35 | 15 | 20 |
| | | Unit 2: Energy and Environment | 15 | 8 | |
| | **Term 2** | Unit 2: Energy and Environment | 15 | 7 | 20 |
| | | Unit 3: Gardening, Nursery & Agriculture Techniques | 15 | 10 | |
| | | Unit 4: Personal Health and Hygiene | 15 | 10 | |
| | | **Total** | **95** | **55** | **40** |
| **Part C** | **Practical Work** | | | | |
| | | Practical Examination | | | 15 |
| | | Project | | | 15 |
| | | Viva Voce | | | 10 |
| | | **Total** | | | **40** |
| **Part D** | **Student Portfolio** | | | | |
| | | Practical File/ Student Portfolio | 10 | | 10 |
| | | **Total** | | | **10** |
| | **GRAND TOTAL** | | **200** | | **100** |

# MULTI SKILL FOUNDATION COURSE (CODE NO- 416)

## CLASS – X (SESSION 2021-2022)

**Total Marks: 100 (Theory-50 + Practical-50)**

| | TERM | UNITS | NO. OF HOURS for Theory and Practical 200 | | MAX. MARKS for Theory and Practical 100 |
|---|---|---|---|---|---|
| **Part A** | **Employability Skills** | | | | |
| | **Term 1** | Unit 1 : Communication Skills-II | 10 | | 5 |
| | | Unit 2 : Self-Management Skills-II | 10 | | |
| | | Unit 3 : ICT Skills-II | 10 | | |
| | **Term 2** | Unit 4 : Entrepreneurial Skills-II | 15 | | 5 |
| | | Unit 5 : Green Skills-II | 05 | | |
| | | **Total** | **50** | | **10** |
| **Part B** | **Subject Specific Skills** | | **Theory (In Hours)** | **Practical (In Hours)** | |
| | **Term 1** | Unit 1: Workshop and Engineering Techniques | 35 | 15 | 20 |
| | | Unit 2: Energy and Environment | 15 | 8 | |
| | **Term 2** | Unit 2: Energy and Environment | 15 | 7 | 20 |
| | | Unit 3: Gardening, Nursery & Agriculture Techniques | 15 | 10 | |
| | | Unit 4: Personal Health and Hygiene | 15 | 10 | |
| | | **Total** | **95** | **55** | **40** |
| **Part C** | **Practical Work** | | | | |
| | | Practical Examination | | | 15 |
| | | Project | | | 15 |
| | | Viva Voce | | | 10 |
| | | **Total** | | | **40** |
| **Part D** | **Student Portfolio** | | | | |
| | | Practical File/ Student Portfolio | 10 | | 10 |
| | | **Total** | | | **10** |
| | | **GRAND TOTAL** | **200** | | **100** |

## DETAILED CURRICULUM/TOPICS FOR CLASS X:

### Part-A: EMPLOYABILITY SKILLS

| S. No. | Units | Duration in Hours |
|---|---|---|
| 1. | Unit 1: Communication Skills-II | 10 |
| 2. | Unit 2: Self-management Skills-II | 10 |
| 3. | Unit 3: Basic Information and Communication Technology Skills-II | 10 |
| 4. | Unit 4: Entrepreneurial Skills-II | 15 |
| 5. | Unit 5: Green Skills-II | 05 |
| | **TOTAL** | **50** |

**NOTE:** **For Detailed Curriculum/ Topics to be covered under Part A: Employability Skills can be downloaded from CBSE website**.

### Part-B – SUBJECT SPECIFIC SKILLS

- Unit 1: Workshop and Engineering Techniques
- Unit 2: Energy and Environment
- Unit 3: Gardening, Nursery & Agriculture Techniques
- Unit 4: Personal Health and Hygiene

### Unit 1 – Workshop & Engineering Section

| LEARNING OUTCOMES | THEORY | PRACTICAL |
|---|---|---|
| 1. Make any one of the following objects: Shoe stand, Candle stand, Hanger, Garbage collector, Tin box, Bangle stand using T-fillet joint, Open corner joint, Single V-butt joint | 1. Describe safety precautions for making objects<br>2. Describe the various types of material that can be used for making objects | 1. Demonstrate and prepare the design and drawing for the object<br>2. Demonstrate and made necessary measurement and marking as per the specifications<br>3. Students will observe & describe the process of welding carried out by the trainer for making the object as per the design & specification. ( Students are not expected to carry out the process of welding but only observe by following due safety precautions)<br>4. Follow safety precautions<br>5. Demonstrate the use of personal protective clothing and equipment<br>6. Perform cleaning of the work area before and after the task<br>7. Process to calculate the cost of the article prepared |

| LEARNING OUTCOMES | THEORY | PRACTICAL |
|---|---|---|
| 2. Carry out GI piping by carrying out treading, coupling two or more pipes using different fittings. | 1. Describe use of different piping fitting used in GI piping. | 1. Perform installation die in pipe wrench<br>2. Perform and adjusting pipe wrench for threading<br>3. Perform and carry out threading<br>4. Perform process to connect pipes using appropriate coupling. |
| 3. Draw plan, elevation of simple objects (Cone, cylinder, cube) | 1. Identify orthographic and isometric view.<br>2. Read and understand orthographic drawing and its dimension.<br>3. Able to interpret scale on the drawing. | 1. Demonstrate and draw plan, elevation and side view of an object.<br>2.Perform selection of scale<br>3. Demonstrate and draw drawing using proper Line, lettering and system of giving dimensions in drawing. |
| 4. Prepare a Ferro cement object (Sheet / tank) as per given specifications | 1. Describe what is Ferro cement and state its applications<br>2. Describe advantages of Ferro cement.<br>3. Describe the safety precautions to be followed when preparing a Ferro cement structure | 1. Demonstrate and perform the process to Construct a Ferro cement job, following relevant safety precautions<br>2. Demonstrate and perform the process to prepare mortar<br>3. Perform curing of job<br>4. Demonstrate and draw orthographic sketch of job with dimension.<br>5. Demonstrate and perform the process to do calculation for costing of job. |
| 5. Prepare Reinforced Cement Concrete (RCC)column | 1. Describe what is an RCC work and its applications.<br>2. Describe function of Torsion bar.<br>3. Describe safety precautions while constructing Reinforced Cement Concrete (RCC) work | 1. Identify various materials used in Reinforced Cement Concrete (RCC)work<br>2. Perform Reinforced Cement Concrete (RCC)work to prepare column as per given specifications and following necessary safety precautions<br>3. Make wooden mold from plywood sheets<br>4. Cutting of torsion bar and bending of 6mm bar |
| 6. Plaster & painting of the brick work of min 1 sq. meter. | 1. Describe safety precautions while plastering with mortar<br>2. Describe the benefits of plastering<br>3. Describe the benefits of painting<br>4. Function of cement, sand and water | 1. Demonstrate the use of personal protective clothing and equipment<br>2. Plaster an area of 1 sq. meter<br>3. Painting of wall |

| LEARNING OUTCOMES | THEORY | PRACTICAL |
|---|---|---|
| 7. Prepare bill for the job. | 1. Describe difference between bills , estimate and quotation<br>2. Describe component of costing and basis for calculating sales price. | 1. Calculate costing of job<br>2. Raise bill to customer |

## UNIT 2 – ENERGY & ENVIRONMENT

| LEARNING OUTCOMES | THEORY | PRACTICAL |
|---|---|---|
| 1. Prepare a simple electrical circuit | 1. Explain the meaning of various terms used in simple circuit such as electrical potential difference/ voltage, conductive path, electrical resistance potential difference, transistor, conventional current, direct current, capacitor, attractive current, ohm's law, ohm's etc.<br>2. Describe the purpose of simple circuit | 1. Perform and prepare the diagram of a simple electrical circuit<br>2. Demonstrate to prepare a simple electrical circuit for operating one lamp by one switch and 2 lamps by two switches.<br>3. Demonstrate process to connect two or more lamps in a series<br>4. Demonstrate process to connect two or more lamps in parallel |
| 2. Demonstrate the knowledge of the basic features and capacity of Inverter and its maintenance | 1. Describe the working principle of Inverter and state the various components of an inverter<br>2. Describe various maintenance needs and procedure to perform the maintenance | 1. Identify various parts of an inverter<br>2. Determine invertor capacity for various combinations of electrical and electronic gadgets (e.g. two tube light and one fan)<br>3. Perform the maintenance of an Inverter |
| 3. Demonstrate installation of DOL/starter to motor | 1. Describe purpose of DOL/Starter and how it works | 1. Process to open DOL Starter<br>2. Perform process to connect DOL starter with the given motor<br>3. Perform a proper cable joint. |
| 4. Demonstrate the understanding of motor / pump and its operation viz. Priming, foot valve etc. | 1. Describe various parts of motor/pump.<br>2. Demonstrate understanding of specification written on pump. Viz. Head/flow/HP<br>3. Describe the need of priming , foot valve, starter etc. | 1. Demonstrate and carry out priming of motor.<br>2. Process to start the pump/motor. |
| 5. Demonstrate the knowledge of functioning of solar lights and devices | 1. Explain the working principle of solar panel and solar devices (any one of solar cooker, solar heater, solar lamp, etc.)<br>2. Describe the advantages and limitations of the use of solar energy | 1. Identify the various components of solar devices and gadgets (any one of solar cooker, solar heater, solar lamp, etc.)<br>2. Demonstrate the knowledge of functioning and maintenance of solar devices and gadgets (any one of solar cooker, solar heater, solar lamp, etc.) |

| LEARNING OUTCOMES | THEORY | PRACTICAL |
|---|---|---|
| 6. Describe the functioning and operation of a Petrol or diesel Engine | 1. Describe the design and working principle of petrol or diesel engine<br>2. Describe the operation of petrol or diesel engine.<br>3. Describe the functioning of important parts like piston, spark plug, and cylinder. | 1. Draw a diagram demonstrating the working of petrol or diesel engine.<br>2. Perform the process to start & stop diesel/petrol engine. |
| 7. Demonstrate the knowledge of biogas. | 1. Describe the various components of Floating Dome Type and Fixed Dome Type Biogas Plants<br>2. Describe the basic principle involved in biogas production<br>3. Describe the working principle of biogas plant | 1. Identify the various components of a biogas plant<br>2. Identify different types of feeds for biogas plant viz. cow dung, poultry litter, starchy biomass kitchen waste etc.<br>3. Draw and demonstrate a diagram of a biogas unit |
| 8. Demonstrate making of charcoal using biomass | 1. Describe what is a biomass and examples of bio mass material<br>2. Describe the purpose of making charcoal from biomass<br>3. Describe steps to make charcoal from biomass | 1. Demonstrate and perform the process to make charcoal out of locally available biomass material |
| 9. Select site for rain Water harvesting | 1. Describe what is rainwater harvesting and why it is necessary 2. Describe what is a contour lines and what are they used for<br>3. Describe application of different survey instruments. | 1. Demonstrate and perform the process to make “A” frame out of the local available wooden material<br>2. Find points on the ground which are at the same level and draw contour.<br>3. Perform the use plaint table/dumpy level to mark contours. |
| 10. To make rain gauge & measure rainfall and understand weather parameters | 1. Describe why do we need to measure rainfall<br>2. Describe what are the different weather parameters | 1. Demonstrate and perform the process to make a rain gauge using a plastic bottle and funnel<br>2. Perform the process to record the rainfall<br>3. Analyze the results<br>4. Analyze other weather parameters measurement from a secondary source (e.g. newspaper, TV) |

## UNIT 3 – GARDENING, NURSERY & AGRICULTURE TECHNIQUE (PART B)

| LEARNING OUTCOMES | THEORY | PRACTICAL |
|---|---|---|
| 1. Apply nursery techniques | 1. Describe the various components of a plant nursery<br>2. Describe the procedure of potting and repotting of plants<br>3. Describe the precautions to be taken when sowing seed/planting plant materials. | 1. Identify various plants suitable for growing in nursery<br>2. Perform the preparation of seed bed/raised bed<br>3. Demonstrate and perform the process to sow seeds in propagation trays and seed bed<br>4. Perform the preparation of pots for growing plants<br>5. Perform potting<br>6. Perform De-potting<br>7. Demonstrate and perform the process to maintaining records of plant growth |
| 2. Demonstrate the knowledge and application of different irrigation and water conservation methods | 1. Describe the advantages and limitations of various irrigation methods (surface, sprinkler, drip, basin, furrow, etc.) and water conservation methods (bund, rainwater harvesting, trenching etc.) | 1. Identify various irrigation methods<br>2. Demonstrate and perform the process to installation and maintenance of drip/sprinkler irrigation system<br>2. Demonstrate and perform the process to various water conservation methods (bund, rainwater harvesting, trenching etc.) |
| 3. Demonstrate the knowledge of interpreting results of soil testing | 1. Describe the importance and purpose of soil testing<br>2. Describe how to collect soil sample<br>3. List the methods used for testing nitrogen, phosphorus and potash in soil | 1. Demonstrate the use of soil auger<br>2. Demonstrate the procedure for collecting soil sample for testing<br>3. Interpret the results of soil test for fertilizer application |
| 4. Assist in artificial insemination | 1. Explain artificial insemination and its benefits<br>2. Describe the AI process | 1. Identify breeds used for artificial insemination |
| 5. Prepare fodder for animals | 1. Describe different fodder making techniques.<br>2. Advantages of giving particular type of fodder to cattle. | 1. Perform a process to select best fodder for animal in the surrounding.<br>2. Carry out the procedure for preparing fodder.<br>3. Perform a process to maintain record and costing of fodder preparation and its effect. |

## UNIT 4 – PERSONAL HEALTH & HYGIENE

| LEARNING OUTCOMES | THEORY | PRACTICAL |
|---|---|---|
| 1. Identify the symptoms of nutrient deficiencies | 1. Describe the importance of balanced diet in health and wellness<br>2. Describe the advantages of being healthy (mental, physical and social wellness) | 1. Identification of the symptoms of nutrient deficiencies<br>2. Identification on how families can influence personal health |
| 2. Identify the personal health behaviors and factors affecting personal health | 1. Describe the importance of a healthy and safe environment.<br>2.Define the terms communicable (infectious) and non-communicable (noninfectious) diseases and identify ways that help to prevent diseases<br>3. List personal health behaviors (e.g. hand washing, teeth brushing, use of tissues, explaining feelings, making healthy food choices, daily physical activity)<br>4. Describe how families and peers can influence the health of adolescents<br>5. Describe Importance of vaccination & essential vaccines for a child. | 1. Demonstrate and perform the process to Identify the personal health behaviors and factors affecting personal health<br>2. Demonstrate and perform the process to hand washing as per the standard procedure<br>3.Identify and practice ways to prevent disease and other health problems<br>4. Demonstrate and perform the process to maintain a wellness log including exercise and food intake for a particular period of time |
| 3. Demonstrate the knowledge of identifying causes and treating dehydration | 1. Describe dehydration and its effect<br>2. Recognize physiological indicators (e.g., heart rate, body temperature, perspiration, thirst) of health and physical activity | 1. Demonstrate and perform the process to identify symptoms of dehydration and take remedial measures.<br>2. Demonstrate and perform the process to prepare Oral Rehydration Salt (ORS) solution. |
| 4. Demonstrate knowledge and measurement of blood pressure, hemoglobin count and identify blood group using self-administered kits | 1. Describe the importance of blood pressure<br>2. Describe the precautions to be taken while measuring blood pressure, hemoglobin count or identifying blood group | 1. Determine blood pressure using blood pressure machine, measure hemoglobin count and identify blood group<br>2. Analyze the results<br><br>Students will observe & describe the process of blood group testing carried out by the trainer. ( Students are not expected to carry out the process of blood group testing but only observe by following due safety precautions) |

| LEARNING OUTCOMES | THEORY | PRACTICAL |
|---|---|---|
| 5. Test quality of water using H2O strip test | 1. Describe harmful ingredients in a contaminated water<br>2. Describe how to analyze results of water quality test | 1. Perform water quality test using H2O strip testing kit<br>2. Analyze the results |
| 6. Identify various community services and programs | 1. Describe the needs of disadvantaged people, people with special needs, travelers, people affected with natural and manmade disasters, aged people, etc.<br>2. Describe need of preventive health care for maintaining personal health by calculating health expenses of family.<br>3. Describe emergency first aid help to needy. | 1. Calculate medical / health expenses of a family in previous year.<br>2. Learn to use first aid kits in emergency. |
| 7. Identify measures for pollution control and take appropriate action | 1. Explain different sources of pollution<br>2. Describe the effects of pollution on environment and on living beings<br>3. Describe different measures for prevention and control of pollution | 1. Identify the sources of pollution<br>2. Identify the effects of pollution on environment and on living beings<br>3. Demonstrate the measures to control pollution |
| 8. Identify food related issues and problems and take appropriate action | 1. Differentiate between fresh and stale food<br>2. Describe the advantages and disadvantages of loose and packed food<br>3. Describe how to handle and serve food for maintaining personal hygiene and health | 1. Identify the hygienic practices/methods adopted for handling of food<br>2. Demonstrate the knowledge of safe transportation of food |

## TEACHING/TRAINING ACTIVITIES:

The teaching and training activities have to be conducted in classroom, laboratory/ workshops and field visits. Students should be taken to field visits for interaction with experts and to expose them to the various tools, equipment, materials, procedures and operations in the workplace. Special emphasis should be laid on the occupational safety, health and hygiene during the training and field visits.

**CLASSROOM ACTIVITIES -** Classroom activities are an integral part of this course and interactive lecture sessions, followed by discussions should be conducted by trained vocational teachers. Vocational teachers should make effective use of a variety of instructional aids, such as audio-video

materials, colour slides, charts, diagrams, models, exhibits, hand-outs, online teaching materials, etc. to transmit knowledge and impart training to the students.

**PRACTICAL WORK IN LABORATORY/WORKSHOP -** Practical work may include but not limited to hands-on-training, simulated training, role play, case based studies, exercises, etc. Equipment and supplies should be provided to enhance hands-on learning experience of students. Only trained personnel should teach specialized techniques. A training plan that reflects tools, equipment, materials, skills and activities to be performed by the students should be submitted by the vocational teacher to the Head of the Institution.

**FIELD VISITS/ EDUCATIONAL TOUR -** In field visits, children will go outside the classroom to obtain specific information from experts or to make observations of the activities. A checklist of observations to be made by the students during the field visits should be developed by the Vocational Teachers for systematic collection of information by the students on the various aspects. Principals and Teachers should identify the different opportunities for field visits within a short distance from the school and make necessary arrangements for the visits. At least three field visits should be conducted in a year.

**SKILL ASSESSMENT (PRACTICAL) -** Assessment of skills by the students should be done by the assessors/examiners on practical demonstration of skills by the candidate. The assessors assessing the skills of the students should possess a current experience in the industry and should have undergone an effective training in assessment principles and practices.

Practical examination allows candidates to demonstrate that they have the knowledge and understanding of performing a task. This will include hands-on practical exam, viva voce and student portfolio (File/journal).

**Project Work** (individual or group project) is a great way to assess the practical skills on a certain time period or timeline. Project work should be given on the basis of the capability of the individual to perform the tasks or activities involved in the project. Projects should be discussed in the class and the teacher should periodically monitor the progress of the project and provide feedback for improvement and innovation. Field visits should be organised as part of the project work. Field visits can be followed by a small-group work/project work. When the class returns from the field visit, each group might be asked to use the information that they have gathered to prepare presentations or reports of their observations. Project work should be assessed on the basis of practical file or student portfolio.

**Student Portfolio** is a compilation of documents that supports the candidate's claim of competence. Documents may include reports, articles, and photos of products prepared by students in relation to the unit of competency.

**Viva voce** allows candidates to demonstrate communication skills and content knowledge. Audio or video recording can be done at the time of viva voce. The number of external examiners would be decided as per the existing norms of the Board and these norms should be suitably adopted/adapted as per the specific requirements of the vocational subject. Viva voce should also be conducted to obtain feedback on the student's experiences and learning during the project work/field visits.

**ORGANISATION OF FIELD VISITS:**

In a year, at least 3 field visits/educational tours should be organised for the students to expose them to the activities in the workplace.

1) Visit a nursery available near their home or school. Instruct students to observe following points in the nursery.

**Observation –** Instruct students to classify and note down various plants available in the nursery in the table below:

| Flowering Plants | Fruit Plants | Vegetables | Medicinal Plants | Ornamental Plants |
|---|---|---|---|---|
| | | | | |
| | | | | |

| Seedlings cultivated by sowing seeds (Seedlings cultivated in seedling trays) | Seedlings cultivated from branches | Seedlings cultivated by grafting | Seedlings cultivated in pots | Seedlings cultivated on ground | Seedlings cultivated in greenhouse |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

**Instruct students to find answers for questions mentioned below, during field visit –**

- Which sections were available in the nursery?
- What precaution is taken while planting seedlings in pots?
- What precaution is taken to prevent pests on seedlings?
- Which method is used in nursery to cultivate good quality seedlings on large scale?
- What is the approximate expense required to raise a seedling in a nursery?
- Which methods are used in a nursery for seeding or cultivating seedling?

2) Visit a nearby fuel station. Instruct them to inquire about the rate of petrol and diesel to a fuel station attendant. Instruct students to gather information about questions mentioned below -

- Which fuel is costlier? What is the reason behind it?
- Why diesel is used in some vehicles instead of petrol?
- How do few vehicles run on both fuels: petrol as well as diesel? Which fuel is environment-friendly?

## LIST OF EQUIPMENT AND MATERIALS

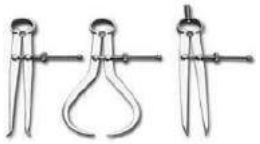
The list given below is suggestive and an exhaustive list should be prepared by the teacher. Only basic tools, equipment and accessories should be procured by the Institution so that the routine tasks can be performed by the students regularly for practice and acquiring adequate practical experience.

**Multi Skill Foundation Course (MSFC)**
**Job Role - Multi Skill Assistant Technician**
**List of Tools and Equipment – Grade 10th**
**Unit : Workshop and Engineering Technique**

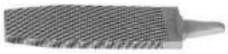
**Notes:**

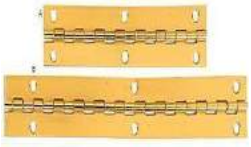
1. 12 to 15 students in one group and the group will be further divided in a group 4 to 5 students who will perform the same practical simultaneously.
2. Sequencing of the project / practical activities among the small groups of students will be necessary to facilitate the use of set of tools available.
3. The list below is arranged section wise / type wise to facilitate procurement of tools as well as stock taking / inventory.
4. Appropriate storage, foundation, as necessary, and display boards will have to be procured for proper storage, upkeep, and security of the tools and equipment. All the tools required for Grade 9th & 10th are listed below.

| Sr. No | Name of Tool, Equipment | Picture | Specification |
|---|---|---|---|
| | **Measuring Equipments** | | |
| 1 | Steel Ruler |  | 150 mm,<br>300mm,1 meter |
| 2 | Measuring Tape |  | 3 and 5 Meter |
| 3 | Spirit Level Bottle |  | 0.01 - 0.05mm/meter |
| 4 | Vernier Calliper |  | 150mm (LC/0.02mm)<br>&<br>200mm (LC/0.05mm) |

| | | | |
|---|---|---|---|
| 5 | Spring Calliper<br>Inside /Outside /Divider |  | 6" or 150 mm Length<br>Inside /Outside /Divider |
| 6 | Out - Side Micrometre |  | 0-25mm (LC/0.01mm) |
| 7 | Threading Gauge<br>( Engineering) |  | Metric |
| 8 | Threading Gauge<br>( Plumbing) |  | British |
| 9 | Radius Gauge |  | Metric |
| 10 | Tri Square |  | 75mmx100mm |
| 11 | Tri-square<br>(Welding) |  | Blade size 150mm |
| 12 | Tri-Square (Casting base)<br>(construction and Carpentry) |  | Blade Size 600mm |
| | **Carpentry Hand Tools/ Cutting Tools / Equipment** | | |
| 13 | Scriber |  | 150 to 200 mm length with double ended - 1 Straight and 1 bend end. |

| | | | |
|---|---|---|---|
| 14 | Claw Hammer |  | 400 gm<br>Chrome Plated Claw Hammer<br>Tubular Steel<br>Handle: With Handle |
| 15 | Mallet Wooden |  | Small |
| 16 | Mallet Plastic |  | Medium |
| 17 | Tenon Saw |  | 10" |
| 18 | Saw |  | 18" |
| 19 | Saw small size |  | 12" |
| 20 | Saw teeth setting plier |  | |
| 21 | Hacksaw Frame |  | 12", fix metal frame. |
| 22 | Half Round Wood rasp File |  | 10" |
| 23 | Flat file Rasp |  | 10" |

| | | | |
|---|---|---|---|
| 24 | Flat file Rough |  | 12" |
| 25 | C-Clamps (for carpentry use) |  | 4" |
| 26 | Iron Plane |  | 5" & 9" |
| 27 | Firmer Chisel |  | Flat, Width 1" & 1/2",Length - 8" with Plastic Handle |
| 28 | Mortise Chisel |  | Width 1/4" & 1/2"<br>Length -8" with Plastic handle |
| 29 | Pairing Chisel |  | Width 1"<br>Length -8" with Plastic handle |
| 30 | Hand Drill Machine |  | |
| 31 | Butt Hinges |  | Width-50mm, Length -100 mm |
| 32 | Rising Butt Hinges |  | Width-50mm, Length -100 mm |
| 33 | T' hinges |  | Width-50mm, Length -100 mm |

| | | | |
|---|---|---|---|
| 34 | Parliament hinge |  | Width-50mm, Length -100 mm |
| 35 | Piano Hinges |  | Width-50mm, Length -100 mm |
| 36 | Sun mica Cutter |  | |
| 37 | Carboundum Stone (Emery) |  | 6" x 2.5" x 2" |
| 38 | Auger Bit |  | 1/4" & 1/2" |
| | **Sheet-Metal Work Hand Tools/ Cutting Tools /Equipment** | | |
| 39 | Tin Cutter (Tin cutter with spring) |  | Small size 12" |
| 40 | Tin Cutter -Scissor |  | 12" |
| 41 | Blow Lamp |  | |
| 42 | Soldering Iron |  | Copper |

| | Drilling, Tapping, Threading Hand Tools/ Cutting Tools /Equipment | | |
|---|---|---|---|
| 43 | Bench Drill Machine (With belt safety guard & on/off switch facility) |  | Capacity: 13mm 230V 50Hz , single phase |
| 44 | HSS Drill set |  | 4 Mm To 13 Mm |
| 45 | Centre Drill |  | 2.5 - 6.5 mm 90 डग्री |
| 46 | Tap Wrench |  | 200 mm |
| 47 | Oil Can |  | 250 ml |
| 48 | Machine vice |  | 100 mm Jaw opening |
| 49 | Hammers B.P (Hammers ball pain) |  | 500 Grams |
| 50 | Hammer C.P (hammer cross pain) with handle forged steel |  | 500 Grams |
| 51 | Flat Chisel |  | 6" |

| | | | |
|---|---|---|---|
| 52 | File Handle Wooden |  | |
| 53 | Flat Basted File |  | 10",12" |
| 54 | Flat Smooth File |  | 12" |
| 55 | Triangular files |  | 10" |
| 56 | Round Basted File |  | 8" |
| 57 | Bench Grinder |  | Wheel Diameter 150 Mm, single phase, 1/2 HP, 230v-50 Hz, |
| 58 | Electrical hand drill machine |  | 13 mm, Fiber Body Drill Machine, KPT |
| 59 | Bench Vice (Code-U -301) |  | Jaw lenght-100mm, |
| 60 | Open End Wrench/ Spanner SET |  | 6mm-18mm(Sizes mm: 6X7, 8X9, 10X11, 12X13, 14X15, 16X17, ) |
| 61 | Ring Spanner Set |  | 6-7 To 20-22 Mm |

| | | | |
|---|---|---|---|
| 62 | Tap & Die Set |  | 6 mm To 12 mm |
| 63 | Die wrench |  | Length 300mm, ID 38mm |
| | **Welding Hand Tools/ Cutting Tools /Equipment** | | |
| 64 | Arc Welding Machine (Transformer) |  | 250Amp / single phase (portable machine) |
| 65 | Cable & Lugs (Welding cable) |  | 5 Meter (welding cable for 250 amp)10 sq. mm.{ 3 Meter for Holder & 2 Meter for Earthing |
| 66 | Welding / Electrode Holder |  | Plastic Handle |
| 67 | Wire Brush |  | |
| 68 | Adjustable Wrench (Adjustable Spanner ) |  | 10" |
| 69 | Grip-on-pliers |  | 100mm |
| 70 | Vise Grip |  | 7'' |

| | Building & Construction Hand/ Cutting Tools /Equipment | | |
|---|---|---|---|
| 71 | Trowel Set |  | Full set with different sizes |
| 72 | Trowel -Plane |  | Plane sheet for finishing |
| 73 | Plumb Bob |  | Metal |
| 74 | Line Rope |  | 15 meter/1 bundle |
| 75 | Sand Sieve |  | 1.5ft dimeter |
| 76 | Masonry Drill (Concrete Drill ) |  | 5 mm To 12 mm(5 No) |
| 77 | Bucket<br>( MS steel bucket ) |  | Iron 10 liter G.I Bucket |
| 78 | Ghamela (MS Steel) (for construction work) |  | MS steel / plastic for construction work |
| 79 | Spade with wooden handle |  | |

| | | | |
|---|---|---|---|
| | **Plumbing Hand Tools/ Cutting Tools /Equipment** | | |
| 80 | Pipe Die Set - with D/E Handle(pipe wrench) |  | 1/2" , 3/4" , 1" |
| 81 | Pipe Vice |  | 3" Cap |
| 82 | Pipe Wrench |  | 12" |
| 83 | Water Pump Plier |  | 10" |
| 84 | Hack Saw Blade |  | 12" (300mm) |
| | **Safety Equipment** | | |
| 85 | Safety Helmet |  | Medium size PVC |
| 86 | Safety Goggle |  | Medium |
| 87 | Welding Goggle |  | |
| 88 | Welding Screen with Head Band |  | |

| | | | |
|---|---|---|---|
| 89 | Overcoat (Apron-Blue colour) |  | small and Medium size (Blue colour) |
| 90 | Hand Gloves (Welding leather hand gloves) |  | small Size (leather) |
| 91 | Cotton Hand Gloves (sheet metal work) |  | Small Size (Cloth) |
| 92 | Hand gloves pairs (constriction) |  | |
| 93 | Welding Apron |  | |
| 94 | Rubber Chappals |  | Medium Size (14-16 age ) Small and Medium |
| 95 | First Aid Box |  | Cotton, Adhesive Bandage, Gauze roll bandage, Scissor, Dettol, Antiseptic cream-Soframycin. |
| | **Storage and Working Table** | | |
| **Sr.No** | **Particular** | **Dimensions' with details** | **Specification** |
| 1 | Cupboard for Storage of tools | Steel file cabinet with 4 adjustable shelves with lock and key facility,<br>20 Gauge with<br>78" x 34 " 19 " (6'6" x 2'10" x 1'7") | 6ft- Steel Cupboard |
| 2 | Display board for tools display and easy access to students | Water Proof ISI Mark plywood with 18mm thickness, For screw drivers, testers to display and easy access | 4ftX2ft Plywood with 18mm thickness |

| | | | |
|---|---|---|---|
| 3 | Working Table is needed to perform practical's for 15 students | Length : 5ft,<br>Breadth : 3 ft<br>Height : 30 Inch<br>Top : 18 Mm commercial ply with 1, Lamination, bottom should be rubber leveller | Steel MS Angle frame with wooden Top ; L shape 35/5 with grey paint |
| 4 | Table for installation of Machine | Length : 4 ft.<br>Breadth : 3ft<br>Height : 30 Inch<br>Top : 18 Mm commercial ply with 1, Lamination, bottom should be rubber leveller | 4FtX3ftX2.5ft Steel frame with wooden top / Power coating grey paint |

**Multi Skill Foundation Course (MSFC)**
**Job Role - Multi Skill Assistant Technician**
**List of Tools and Equipment - Grade 10th**
**Unit : Energy and Environment**

**Notes:**

1. 12 to 15 students in one group batch and the group will be further divided in a group 4 to 5 students who will perform their same practical simultaneously.
2. Sequencing of project/ practical activities among the small group of students will be necessary to facilitate the use of set of tools available.
3. The list below is arranged section wise / type wise to facilitate procurement of tools as well as stock taking / inventory.
4. Appropriate storage, foundation, as necessary, and display boards will have to be procured for proper storage, upkeep, and security of the tools and equipment.

| Sr. No. | Name of the Tool / Equipment | Picture | Specification |
|---|---|---|---|
| | **Measuring Devices** | | |
| 1 | Voltmeter |  | 10 to 500 V |
| 2 | Ammeter |  | 0 to 50 amp |
| 3 | Wattmeter |  | 0 to 1500 W |

| | | | |
|---|---|---|---|
| 4 | Frequency Meter |  | 05 to 65 Hz |
| 5 | Voltmeter / DIGITAL MULTIMETER |  | |
| 6 | Non-contact Voltage Detector |  | |
| 7 | Wire Gauge |  | |
| 8 | Hydro Meter |  | to check gravity for Acid battery |
| 9 | Fish Tape |  | up to 15ft |
| 10 | Linesman Pliers (Combination Pliers) |  | 8" |
| 11 | Long Nose Pliers |  | 6" |
| 12 | Side Cutting Player |  | 6" |
| 13 | Screw Driver Set |  | 100, 150, 200, 250, 300 mm |
| 14 | Screw Driver Set / Electrician-Wiremen Set |  | |
| 15 | Poker |  | |

| | | | |
|---|---|---|---|
| 16 | Tester |  | |
| 17 | Wire Stripper |  | |
| 18 | Razor Blade Knife (Utility Knife) |  | |
| 19 | Hack Saw |  | |
| 20 | 3 Core Flexible Cable ( For Drilling , Grinding , Welding M/c connecting ) |  | 1.5 Sq mm |
| 21 | Sockets (Assorted) 2 Pin |  | 2 Pin |
| 22 | Sockets (Assorted) 3 Pin |  | 3 Pin |
| 23 | Plugs (Assorted) Top 2 Pin |  | 2 Pin |
| 24 | Plugs (Assorted) Top 3 Pin |  | 3 Pin |
| 25 | Switches |  | |
| 26 | Switches (Assorted) One way |  | |

| | | | |
|---|---|---|---|
| 27 | Switches (Assorted) Two way |  | |
| 28 | Bell Push Switch |  | |
| 29 | Lamp Holders (Assorted) Angle |  | |
| 30 | Lamp Holders |  | |
| 31 | Light Emission Diode |  | |
| 32 | Pull-Push Switch |  | |
| 33 | Fluorescent Tube Light Set |  | 40 watt |
| 34 | Capacitor |  | 1000uF 25V ±20% Tolerance +105°C Max Temperature. |
| 35 | Relay |  | |
| 36 | Earthing Plate |  | 1 ft. X 1ft. |
| 37 | Earthing Rod |  | |
| 38 | Earthing Pipe |  | |

| | | | |
|---|---|---|---|
| 39 | Different Type of Fuse |  | |
| 40 | Miniature Circuit Breaker |  | |
| 41 | Electric Soldering Iron |  | 35 watt |
| 42 | Valve Spanner |  | |
| 43 | Nozzle/Nipple spanner |  | |
| 44 | Wick Stove |  | |
| 45 | Pressure Stove |  | |
| 46 | DOL STARTER |  | Single Phase, 230 Volt |
| 47 | WATER PUMP 1 PHASE |  | Single Phase , 0.5 HP |
| 48 | MOTER ELECTRIC 1 PHASE |  | Single Phase , 230 volt |
| 49 | Rotary Switch |  | |
| 50 | Earthing Wire |  | 11 Gauge |

| | | | |
|---|---|---|---|
| 51 | Electric Wires |  | 1 sq. mm |
| | **Safety Tools and equipment** | | |
| 52 | Electrical Hand Gloves |  | 11 KVA |
| 53 | Rubber Matting |  | 3' x 2' |
| 54 | Sand Bucket |  | 10 Litre |
| 55 | Fire Extinguisher CO2 |  | 2kg, ABC Types |
| | **Storage and Working Table for students** | | |
| **Sr.No.** | **Particular** | **Dimensions with details** | **Specification** |
| 1 | Cupboard for Storage of tools | with lock and key facility | 6ft- Steel Cupboard |
| 2 | Display Board | For screw drivers etc. for tools display and easy access, Water Proof ISI Mark plywood | 4ftX2ft Plywood with 18mm thickness |
| 3 | Working Table is needed to perform practical's for 15 students | Wooden working table | Steel frame with wooden Top |
| 4 | Stools for sitting | Length : 12 Inch<br>Breadth : 12 inch<br>Height : 20 Inch<br>Top : Perforated sheet with gauge, Steel Frame : 20 mm x 20 mm x 18 Gauge square tube with powder coating in grey paint, bottom should be rubber leveller | 12"x12x20"<br>Top : Perforated sheet with 18 gauge |

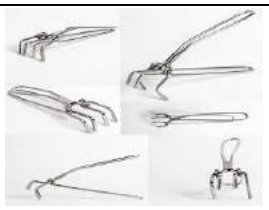
**Multi Skill Foundation Course (MSFC)**
**Job Role - Multi Skill Assistant Technician**
**List of Tools and Equipment – Grade 10th**
**Unit : Food Processing Techniques & Personal Health and Hygiene**

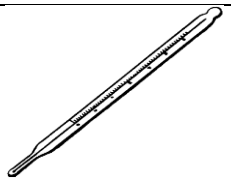
**Notes:**

1. 12 to 15 students in one group batch and the group will be further divided in a group 4 to 5 students who will perform their same practical simultaneously.
2. Sequencing of project/ practical activities among the small group of students will be necessary to facilitate the use of set of tools available.
3. The list below is arranged section wise / type wise to facilitate procurement of tools as well as stock taking / inventory.
4. Appropriate storage, foundation, as necessary, and display boards will have to be procured for proper storage, upkeep, and security of the tools and equipment.

| Sr. No. | Name of the Tool / Equipment | Picture |
|---|---|---|
| | **General Tools** | |
| 1 | Stainless steel Plates |  |
| 2 | Sieves |  |
| 3 | Set of cooking spoon |  |
| 4 | Stainless steel Containers with Cover (Pot) |  |
| 5 | Steel Bowls |  |
| 6 | Frying Pan (medium) |  |

| | | |
|---|---|---|
| 7 | Grater/ Shredder |  |
| 8 | Hand Operated Chikki Slicer (Roller), cutter |  |
| 9 | Knives |  |
| 10 | Roller |  |
| 11 | Gas lighter |  |
| 12 | Measuring Mug / Cup |  |
| 13 | Measuring Spoons |  |
| 14 | Mixer (Mixture-Grinder) |  |
| 15 | Pressure Cooker |  |

| | | |
|---|---|---|
| 16 | Scissors |  |
| 17 | Table Spoons |  |
| 18 | Single Burner Stove |  |
| 19 | Tong |  |
| 20 | Vegetable Peeler |  |
| 21 | Water Container (Jug) |  |
| 22 | Hindalium container with lid - 3 lit |  |
| 23 | Dust Pan |  |
| 24 | Sieves |  |

| | | |
|---|---|---|
| 25 | Plastic Container |  |
| 26 | Glass container |  |
| 27 | Kitchen Balance |  |
| 28 | Plastic Bucket |  |
| 29 | Plastic Dustbin |  |
| 30 | Blood Pressure Measuring Equipment (Sphygmomanometer) |  |
| 31 | Stethoscope |  |
| 32 | Thermometer |  |
| 33 | Weighing machine |  |

| | | |
|---|---|---|
| 34 | First -aid Box |  |
| 35 | Beaker |  |
| 36 | Digital BP machine |  |
| 37 | Digital timer |  |
| 38 | Candy Thermometer (for taking food temperature |  |
| 39 | Wall clock |  |
| 40 | Fire Extinguisher CO2 |  |
| 41 | Apron (Cloth) |  |
| 42 | Dish towels |  |

| | | |
|---|---|---|
| 43 | Hand Gloves |  |
| 44 | Hand Gloves (Plastic) |  |
| 45 | Head Caps (Cloth) |  |
| 46 | Candles |  |
| 47 | Aluminium foil |  |
| | **CHARTS** | |
| 48 | Food Pyramid |  |
| 49 | Nutrition Chart |  |

| | | |
|---|---|---|
| 50 | Diseases Chart |  |

## Storage and Working Tables for students

| Sr.No. | Particular | Dimensions with details | Specification |
|---|---|---|---|
| 1 | **Cupboard** for Storage of tools | Steel file cabinet with 4 adjustable shelves with lock and key facility,<br>20 Gauge with 78" x 34" 19" (6'6" x 2'10" x 1'7") | 6ft- Steel Cupboard |
| 2 | Kitchen Table with Drawer and Storage cupboard / Working table | Length : 5ft<br>Breadth : 3ft<br>Height : 30 Inch<br>Steel Frame : 20 mm x 20mm Square tube with 18 gauge , legs rubber bush, colour grey with powder coating.<br>Top: GI Top with sink frame with sink _ keep empty space below sink. One drawer with lock and key facility and two shelves with two door and half closed from all side.<br>Frame: Steel MS Angle; L shape 35/5 with grey paint. | 5ftx3ftx2.5 steel frame with steel top |
| 3 | Stools for sitting | Length : 12 Inch<br>Breadth : 12 inch<br>Height : 20 Inch<br>Top : Perforated sheet with 18 gauge, Steel Frame : 20 mm x 20 mm x 18 Gauge square tube with powder coating in grey paint , bottom should be rubber leveller (Nylon ) | 12"x12x20"<br>Top : Perforated sheet with 18 gauge |
| 4 | Display Board/Notice Board | for tools display and easy access,<br>Water Proof ISI Mark plywood | 4ftX2ft Plywood with 18mm thickness |
| | **Consumables** | | |
| | Consumables will be required to be procured as per the need of the Practical. | | |

**Multi Skill Foundation Course (MSFC)**
**Job Role - Multi Skill Assistant Technician**
**List of Tools and Equipment – Grade 10th**
**Unit : Basics of Agriculture & Animal Husbandry Techniques**

**Notes:**

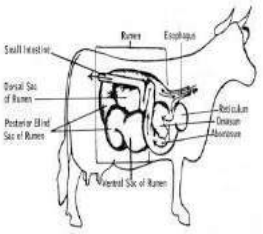
1. 12 to 15 students in one group batch and the group will be further divided in a group 4 to 5 students who will perform their same practical simultaneously.
2. Sequencing of project/ practical activities among the small group of students will be necessary to facilitate the use of set of tools available.
3. The list below is arranged section wise / type wise to facilitate procurement of tools as well as stock taking / inventory.
4. Appropriate storage, foundation, as necessary, and display boards will have to be procured for proper storage, upkeep, and security of the tools and equipment. At the end of the list, additional tools for urban schools are prescribed.
5. Green Highlighted tools indicate as a consumable.

| Sr. No. | Name of the Tool, Equipment | Picture |
|---|---|---|
| | **General Tools** | |
| 1 | Budding Knife |  |
| 2 | Garden Knife |  |
| 3 | Grafting Knife |  |
| 4 | Hori Knife (Soil Knife) |  |
| 5 | Tree Cutting Shears |  |

| | | |
|---|---|---|
| 6 | Pruning Sheared / C Cutter |  |
| 7 | Pruning Knife |  |
| 8 | Trowels |  |
| 9 | Spade with wooden Handle |  |
| 10 | Axe with wooden handle |  |
| 11 | Pickaxe with wooden handle |  |
| 12 | Hand Digging Trowel |  |
| 13 | Sickle |  |
| 14 | Leaf Rake |  |

| | | |
|---|---|---|
| 15 | Scissor |  |
| 16 | Watering Can, 8 to 10 Litre. |  |
| 17 | Plastic Ghamela |  |
| 18 | Crate |  |
| 19 | Plastic Jar - 500 ml<br>(Mug) |  |
| 20 | Plastic Buckets , 10 Litre |  |
| 21 | Spraying Pump |  |
| 22 | Measuring Tape |  |
| 23 | Weighing Balance |  |

| | | |
|---|---|---|
| 24 | Animal Digital Thermometer |  |
| 25 | Magnifying lens(bi-concave lens) |  |
| 26 | Seeding Trays for Nursery ?( 70 Cavity / holes ) |  |
| 27 | Sprinkler Irrigation Unit ( Lateral pipe 16mm x 20ft , Micro sprinkler & micro jet 05 no's each ) |  |
| 28 | Drip Irrigation Unit ( Lateral pipe 16mm x 20 ft. , Elbow , coupler , T-joint , mini valve, end cap , drip punch 5nos each |  |
| 29 | Grafting transplanting bags |  |
| 30 | Lactometer |  |
| 31 | Measuring Cylinder |  |

| | | |
|---|---|---|
| 32 | Beaker |  |
| 33 | Hand Gloves (Long) |  |
| 34 | Mask ( Canvas Mask ) |  |
| | **CHARTS** | |
| 35 | Irrigation method charts | |
| 36 | Artificial insemination Chart |  |
| 37 | Breed charts Cow, Goat ,Bullock |  |
| | **Storage and Working Tables for students** | |
| **Sr.No** | **Name of the Tool / Equipment** | **Dimensions with details** |

| | | |
|---|---|---|
| 1 | **Cupboard** for Storage of tools | Steel file cabinet with 4 adjustable shelves with lock and key facility,<br>20 Gauge with<br>78" x 34 " 19 " (6'6" x 2'10" x 1'7" ) |
| 2 | **Display board** for tools display and easy access to students | Water Proof ISI Mark plywood with 18mm thickness, For screw drivers, testers to display and easy access |
| 3 | Working Table is needed to perform practical's for 15 students | Wooden working table with Stools for 12/15 students |
| | **Consumables** | |
| | Consumables will be required to be procured as per the need of the practical. | |