STANDARD OPERATING PROCEDURES (SOP) – EQUIPMENTS

DIGITAL MOISTURE METER (INFRARED MOISTURE METER)

1. Switch on the moisture meter and infrared lamp.
2. Place the sample.
3. Note down the weight and moisture percentage as indicated in graduated scale.
4. Take out the sample and switch off lamp and moisture meter.

SOXHLET APPARATUS

1. Assemble the apparatus.
2. Fill the round bottom flask with solvent (n-Hexane).
3. Put the thimble containing sample into extraction tube.
4. Attach the extraction tube with flask containing solvent.
5. Attach a condenser unit with the extraction tube and run the water.
6. Fix the soxhlet apparatus on hot plate and heat the flask containing solvent.
7. The solvent starts to evaporate and falls in the extraction tube after condensing.
8. Continue this process till all the fat is extracted.
9. Discontinue the process and take out the thimble.
10. Again attach the extraction tube with flask containing solvent along with fat and condenser unit.
11. Again heat the flask to recover the solvent.
12. Discontinue the process and clean the extraction tube and thimble.

DISTILLATION UNIT

1. Fill the round bottom flask of distillation unit with water
2. Attach it with condenser and start the water supply
3. Switch on the unit.
4. Collect the distilled water in container

DIGITAL WEIGHING BALANCE

1. Switch on the balance
2. Wait till reading on scale is shown as zero
3. Place a petri plate on plate of balance
4. Either note the weight of petri plate or tare it off
5. Put the required quantity of sample on petri plate

LOVIBOND COMPARATOR (SILICA METHOD 2 USING 4-AMINO-3-HYDROXYNAPHTYLENE-1-SULPHONIC ACID)

1. Adjust the temperature of sample to 20-30 C and fill in a 40mm moulded cell to th 20ml mark
2. Add 2ml of sulphuric acid molybdate reagent and mix. After 5min, add 4ml of tartaric acid reagent and 1ml of 4-Amino-3-Hydroxynaphthlene-1-Sulphonic Acid.
3. Allow to stand for twenty min.
4. Place the cell in right hand compartment of the comparator and a similar cell containing deionised water and reagents as above to act as blank in the left hand compartment.
5. Match the color of solution against the disc using a standard source of white light.
6. The figure shown in the bottom right hand corner of the comparator is the silica concentration in mg/Lt SiO$_2$

**WATER BATH**

1. Fill the instrument with water and switch on
2. Set the temperature of water as per requirement.
3. Place the sample in water bath.

**HOT PLATE ROUND**

1. Switch on the hot plate.
2. Set the temperature as per requirement.
3. Place the sample for heating.

**HEATING MANTLE**

1. Switch on the heating mantle.
2. Set the temperature.
3. Place the sample in the round bottom flask.

**ICE CREAM MAKING UNIT**

1. Switch on the unit.
2. Turn on the compressor switch.
3. Put the ice-cream mix in the freezer.
4. Turn on the dasher.
5. Turn on the air when the ice cream gets ready.
6. Remove the ice-cream from the unit.

**DIGITAL BACTERIOLOGICAL INCUBATOR**

1. Set the temperature as per requirement.
2. Place the samples for incubation.

**DIGITAL COLONY COUNTER**

1. Switch on the colony counter.
2. Place the petriplate over counter.
3. Scroll the pen over the colony counter.
4. Count the colonies.

**AUTOCLAVE**

1. Switch on the autoclave.
2. Set the pressure at 15 psi.
3. Set the water level.
4. After putting the glassware, close the autoclave.
5. Sterilize at 121 C (15psi) for 15 minutes.

**HIGH PRESSURE AUTOCLAVE**

1. Switch on the autoclave.
2. Set the pressure at 15 psi.
3. Set the water level.
4. After putting the glassware, close the autoclave.
5. Sterilize at 121 C (15psi) for 15 minutes.

**OLYMPUS STUDENT MICROSCOPE**

1. Clean the lens.
2. Set the slide on the stage.
3. Focus the slide with particular objective.
4. View the specimen.

**OLYMPUS MAGNUS INCLINED MICROSCOPE**

1. Switch on the microscope.
2. Clean the lens.
3. Set the slide on the stage.
4. Focus the slide with particular objective.
5. View the specimen.

**CHEESE MAKING UNIT**

1. Place the milk in the machine.
2. Start the heating under the vat.
3. Turn on the machine for stirring cum scraping.

**RICE HUSKER**

1. Switch on the instrument.
2. Pour Paddy (2kg) from paddy receiver.
3. Let dehusking done for five minutes.
4. Switch off the instrument.
5. Open the door and take out the brown rice.
6. Husk gets aspirated off.

**RICE POLISHER**

1. Switch on the instrument.
2. Pour brown rice from receiver.
3. Let polishing done for five minutes.
4. Switch off the instrument.
5. Open the door and take out the polished rice.
**HYDROGENATOR**

1. Prepare a distilled wash bottle for rinsing of the rubber closure and tip of tube.
2. Fill the reaction container with sample up to ¼ the volume (100 ml).
3. Put the explosion-proof metal cage around the container.
4. Place the container into the holder, enclose it with the rubber closure, and tighten by turning the two clamp screws.
5. Note the pressure on the right indicator. Make sure there is sufficient gas in the tank.
6. Turn on the main tap on top of the hydrogen tank to fill the reservoir. DO NOT adjust the regulator tap on the tank. Pressure reading of reservoir should be 30-60 psi.
7. Flush the container off air by opening the outlet tap of the reservoir and releasing the gas with the other tap next to it. Then fill the container with gas up to 30-40 psi.
8. Turn off the main tap of the tank.
9. Turn on the rocker. Have a fan turned on close to the motor.
10. At the end of usage, turn off the rocker. Release leftover gas from reaction container. Remove the content and rinse the rubber septum with distilled water and dry. Return the container after washing.

**FRUIT PULPER**

1. Switch on the instrument.
2. Pour prepared fruit from the receiver.
3. The grinded pulp is collected from the outlet.
4. Switch off the instrument.