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AARUPADAI VEEDU INSTITUTE OF TECHNOLOGY



VINAYAKA MISSION'S
RESEARCH FOUNDATION
(Deemed to be University under section 3 of the UGC Act 1956)



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DEPARTMENT BIOTECHNOLOGY

17BTCC83-MICROBIOLOGY LAB

STANDARD OPERATING PROCEDURE

Standard Operating Procedure for operating Digital Incubator

Name of the Lab./facility	Microbiology & Down Stream Processing Engineering Lab
Purpose	To describe the procedure for the operation and maintenance of the Digital Incubator
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the Digital Incubator in the Microbiology & Down Stream Processing Engineering laboratory, Vinayaka Missions' Research foundation
Responsibility	Faculty i/c of the facility, HoD/Biotechnology
STANDARD OPERATING PROCEDURE FOR DIGITAL INCUBATOR	
<ul style="list-style-type: none"> • Ensure that the incubator is properly connected to the power supply and Switch on the main • Turn on the red colour power knob towards 0-1. • To set the incubator at 22°C , set the lower temperature 21°C by pressing the 'SET POINT -1' and simultaneously adjust the temperature with the help of screw of SET and RST by screw driver. • Set the incubator temperature to 22°C. Wait till the set temperature is reached. • Take a calibrated thermometer and dip it in a 500 ml beaker filled to 3/4 of the volume with Glycerol AR grade. • Keep the beaker inside, at the center of the incubator. Close the incubator door. 	



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Allow the temperature to equilibrate for 30 minutes.

- By following the same procedure as above carry out calibration by setting the incubator temperature to 37°C, 44°C and 55°C
- Record any discrepancy observed during operation or during temperature monitoring to Quality Control Executive and notify the defect to technical assistant for rectification. Affix “BREAK DOWN” label on the instrument

PRECAUTIONS TO BE FOLLOWED

- Ensure that the power supply to the incubator is switched ‘OFF’.
- Dedust the incubator daily externally with a clean dry cloth.
- Once a week remove adhered dust by wet mopping using detergent solution.
Afterwards wipe the surface with a clean dry cloth to remove traces of detergent.
- Once in a month clean the interior surfaces with 2.5 % savlon solution using a clean cloth

A. J. L.

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STANDARD OPERATING PROCEDURE

Standard Operating Procedure for Operating Hot Air Oven

Name of the Lab./facility	Microbiology & Down Stream Processing Engineering Lab
Purpose	To describe the procedure for the operation and maintenance of the Hot Air Oven
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the Hot Air Oven in the Microbiology & Down Stream Processing Engineering Laboratory, Vinayaka missions' Research foundation
Responsibility	Faculty i/c of the facility, HoD/Biotechnology
STANDARD OPERATING PROCEDURE FOR HOT AIR OVEN	
<ul style="list-style-type: none"> • Ensure the cleanliness of the instrument • Open the ventilation knob provided on top of the oven • Switch "ON" the power supply • Electronic temperature controller displays the chamber temperature • Set the required temperature by pushing the "PUSH" switch and first potentiometer knob clockwise or anticlockwise until the temperature comes to set one • Set the temperature with the help of second potentiometer knob • Release the "PUSH" switch 	



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- Indicator Bulb glows indicates that the power to the heater is “ON”
- Use rotary switch for precise control of temperature

PRECAUTIONS TO BE FOLLOWED

- Wipe the surface, walls, top, bottom and trays of the oven with dry lint free cloth on the daily basis so that there will be no dust particles in the oven
- Wipe all the parts and the outer surface of the oven with the wet lint free cloth soaked in purified water, on weekly basis

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STANDARD OPERATING PROCEDURE

Standard Operating Procedure for Operating Laminar Airflow

Name of the Lab./facility	Microbiology & Down Stream Processing Engineering Lab
Purpose	To describe the procedure for the operation and maintenance of the Laminar Airflow
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the Laminar Airflow in the Microbiology & Down Stream Processing Engineering laboratory, Vinayaka missions' Research foundation
Responsibility	Faculty i/c of the facility, HoD/Biotechnology

STANDARD OPERATING PROCEDURE FOR LAMINAR AIRFLOW

- Switch "ON" the mains
- Switch "OFF" U.V light
- Switch "ON" laminar air flow and light
- Check and ensure manometer reading "0" mm of water gauge before switching "ON". Check and ensure the manometer reading between 10 to 15 mm water gauge after switching "ON" the LAF and keep the record of



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reading

- In case the manometer reading is found out of limit, inform maintenance department for corrective action
- Clean the LAF bench with 70% IPA before use and after completion of work

PRECAUTIONS TO BE FOLLOWED

- Validate the LAF twice a year by the third party for DOP test/smoke Test for air velocity and for nonviable particle count
- Maintain U.V light burning record

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STANDARD OPERATING PROCEDURE

Standard Operating Procedure for Operating UV-Vis Spectrophotometer

Name of the Lab./facility	Microbiology & Down Stream Processing Engineering Lab
Purpose	To describe the procedure for the operation and maintenance of the UV-Vis Spectrophotometer
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the UV-Vis Spectrophotometer in the Microbiology & Down Stream Processing Engineering laboratory, Vinayaka missions' Research foundation
Responsibility	Faculty i/c of the facility, HoD/Biotechnology
STANDARD OPERATING PROCEDURE FOR UV-VIS SPECTROPHOTOMETER	
<ul style="list-style-type: none"> • Check inside the UV-Vis chamber to assure that the appropriate sample holder (i.e., the liquid or solid sample holder) is in place. If it is not switch it out, the correct sample holder will be in the cabinet above the equipment. • Turn the UV-Vis on by pressing the button in the front of the unit. The unit is not operational until the blinking light on the button goes to a solid green color • To take a background, fill 2 cuvettes with the same solution, place them in the reference slot (R) and sample slot (S), and click on Baseline - The program will ask for range of wavelength. Type in 700 to 200nm, then click ok • Replace the cuvette in the sample slot with your actual sample. Be sure that the 	



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cuvette is 2/3 full.

- Click Start
- After the scan is done, select where to save the data
- To view data points, click on the icon that looks like a paper with writing on it. (to the right of the icon with an M in a circle)
- To organize data, copy and paste data onto your own excel sheet
- To save a single scan, go to file>save as

PRECAUTIONS TO BE FOLLOWED

- Click Disconnect
- Flip switch on UV-VIS off
- Always turn the system off when you do not plan to use it soon to conserve the lamp life

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STANDARD OPERATING PROCEDURE

Standard Operating Procedure for Operating Water bath Incubator Shaker

Name of the Lab./facility	Microbiology & Down Stream Processing Engineering Lab
Purpose	To describe the procedure for the operation and maintenance of the Water bath Incubator Shaker
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the Water bath Incubator Shaker in the Microbiology & Down Stream Processing Engineering laboratory, Vinayaka missions' Research foundation
Responsibility	Faculty i/c of the facility, HoD/Biotechnology

STANDARD OPERATING PROCEDURE FOR WATER BATH INCUBATOR SHAKER

- Fill and check the water level, if required fill purified water to the acceptance level. The minimum water level is indicated by a black line on the water level indicator on left
- Switch "ON" the ring both by pressing "ON/OFF" switch
- The digital temperature controller cum indicator will indicate the actual temperature of water
- Set the desired temperature by pressing the PRESS to SET switch and adjusting the



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SET pot

Approximately 1°C before the set temperature, the heater will start going on and off
Heater action is indicated by the LED on the DTC. Allow a few minute for the temperature to stabilize

PRECAUTIONS TO BE FOLLOWED

- Do not operate without water
- Switch OFF when the instrument is not in use

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STANDARD OPERATING PROCEDURE

Standard Operating Procedure for Operating Microscope

Name of the Lab./facility	Pathology & Microbiology Lab
Purpose	To describe the procedure for the operation and maintenance of Microscope
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the Microscope in the pathology and microbiology laboratory, Vinayaka missions' Research foundation
Responsibility	Faculty i/c of the facility, HoD/Biotechnology

STANDARD OPERATING PROCEDURE FOR MICROSCOPE

- Switch on the instrument by using 'ON /OFF' switch.
- The green LED integrated 'ON /OFF' switch lights up, to indicate that the instrument is ready for operation.
- Set the required brightness through brightness control.
- Position the slide on the stage with the sample to be observed on the upper surface of the slide.
- Adjust the slide to bring into the exact center of the light source.
- Low magnification objective lens shall be focussed first followed by high magnification lens on the center of the sample.
- Turn the coarse adjustment knob to adjust the stage.
- While observing through the ocular bring the object into focus by



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adjusting with the coarse knob. By using fine adjustment knob, focus the sample for better resolution.

- Adjust the diaphragm lever to reduce or increase the light intensity to produce the clear and sharp image.
- Once the image is visible, adjust the slide for the targeted item in the image.
- To proceed from low power to high power magnification, rotate the high power objective into position.

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