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KING FAISAL UNIVERSITY

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INSTRUMENT STANDARD OPERATING PROCEDURE MANUAL

College of Medicine

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Prepared by

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Document History

Document Section	Details of Amendments	Date	Modified by (Initials)
SOP	First Draft on SOP for the operation of **Transmission Electron Microscopy (TEM- JEOL(JEM-1011)**		

1. OBJECTIVE

The document describes the operation of Transmission **Electron Microscopy (TEM- JEOL (JEM-1011).**

- **Used to study the internal structures of the cells.**

2. SCOPE

- Full automated software processor system with integrated DIGITAL CAMERA.
- Accelarating voltage40 to 100Kv.
- Magnification mode SAP 10B :800- 600,000 TIMES
- **For biological samples (virus, tissue…etc and Geological specimen)**

3. RESPONSIBILITIES

- It is the responsibility of designated personnel in the lab to train staff and students on this procedure and to ensure adherence to this procedure under supervision.
- It is the responsibility of designated personnel (staff or Student) to follow the instructions of this procedure under supervision.

4. REFERENCES

- **FOR Transmission Electron Microscopy instructions manual (TEM-JEOL(JEM-1011)).**

5. DEFINITIONS

- **Transmission Electron Microscopy (TEM- JEOL(JEM-1011)) IS A** Closed fully automated controlled programming software..
- Control Panel – R (FOR MAGNIFICATION,FOCUSING,FILMENT AND CONTROL HIGH TENSION).
- Control Panel - L (Adjust the contrast and brightness.).
- Control Panel – CL (Switch on and open the Right control panel).
- Control PF(to specify the voltage maximum 100 KV)
- Column.
- Four Electron magnetic Lenses.(condenser, objective, intermediate and projector).
- VACUUM TUBE.
- Chiller.

- ☐ DP(Air Power Vacuum).
- ☐ Specimen holder.(2 specimen each)
- ☐ Specimen Section
- ☐ Electron beam(A node).
- ☐ Electron Gun.
- ☐ Fluorescent Screen.
- ☐ Digital camera(0.5 nm).
- ☐ Air compressor.
- ☐ Screen
- ☐ Printer

6. SAFETY PRECAUTIONS

- ☐ Do not remove the grounding wire ,it may cause electric shock.
- ☐ Do not dismount or reassemble thhe microscope column.
- ☐ Any abnormalities occur immediately shut down and contact the JEOL ENGIENEER .
- ☐ Do not touch the Wehnrlt to avoid the electric shock.
- ☐ Do not put your hand between the upper and lower electron gun chambers.
- ☐ Before starting be sure the gun lift and lens power set as ON.

6.1. PROCEDURE FOR OPERATING Transmission Electron Microscopy (TEM-JEOL(JEM-1011)) IS ATurning on the instrument:

6.2. Software Operation.

6.3. Steps of the Procedure

- ☐ **Turning on the regulation power supply (Leave it overnight).**
- ☐ Turn On the control panels (L-R,CL,PF).
- ☐ Open the compressed air pressure(0.28-0.47)MPa.
- ☐ Open the main valve of cooling water supply .
- ☐ Check the personal file for the operating condition.
- ☐ Place the specimen holder onto the specimen holder stand.
- ☐ Loading the films into a dispensing magazine. And place the magazine be into of camera chamber
- ☐ Set the voltage value for the electron beam – for biologic samples is 80Kv (maximum voltage is 100 Kv
- ☐ Align the condenser lenses.

- ☐ Inserting the CONDENSER LENSE into the beam path.
- ☐ Condenser lens astigmatism correction
- ☐ Obtain the filament image.
- ☐ Adjust the specimen by using goniometer.

6.4. Turning off the Instrument

END OF PROGRAM

- ☐ **To turn off the instrument.**
- ☐ Unload the samples
- ☐ Turn off the software.
- ☐ Turn off the control panel..
- ☐ Turn off the electric main power source.
- ☐ Wait for 15 minutes
- ☐ Cut the power from the control panel.

6.5. Warning

Write any the warning in BOLD and RED FONT.