TEZPUR UNIVERSITY : NAPAAM(TEZPUR)

LABORATORY SAFETY RULES

All the students, researchers and faculty members should follow the following laboratory safety rules while working in the laboratory and workshop:

1. General:

(i) Dress appropriately as per the requirement of the laboratory. Avoid wearing bulky or loose fitting clothes or dangling jewellary. Wearing laboratory coat in the lab is a must.

(ii) Never work alone in the lab/ workshop. In case of working alone, make sure that someone knows where you are and what you are doing.

(iii) Never run or play in the laboratory. No food or drink should be consumed in the laboratory and workshop.

(iv) Never taste any chemical or solvent and pipette out by mouth. Never smell gases directly. Wear gloves when using any hazardous or toxic material. Wear safety goggles when working with flames, heated liquids or glassware.

(v) Do not use any equipment unless you are trained and permitted.

(vi) When working with electric circuits, be sure that the current is turned off before making adjustments in the circuit. Avoid using of extension cords whenever possible. Never ever use, modify, attach or otherwise change any high voltage equipment without consulting the concerned in-charge.

(vii) Do not leave any ongoing experiment unattended.

(viii) Know the locations of fire extinguishers, fire blankets, eye wash basin, and telephone in the laboratory and learn how to use them. First aid box must be placed in the laboratory/ workshop with proper maintenance for immediate use in case of any accident. Concerned teacher/ supervisor/ lab safety officer of the lab/ workshop should be informed immediately in case of any accident in the laboratory or workshop.

(ix) Handle all living organism used in the laboratory activity in a humane manner.

(x) Wash hands after working in the laboratory even if the gloves are used.

(xi) Always handle inflammable liquids with great care and keep them away from naked flames. Always handle concentrated acids and alkalis with great care.

(xii) Each lab/ workshop must maintain a log book. The responsibilities for the person entering in to the lab/ workshop first and leaving the lab/ workshop last be displayed clearly in the lab/ workshop.

(xiii) After finishing the work in the laboratory, ensure that the water and burner are turned off and the electric connections are disconnected.

(xiv) Adopt greener methods to minimize hazardous waste generation of any form.

(xv) Departments having laboratories shall select one Lab-safety Officer from amongst the faculty members or technical officers who will look in to the laboratory safety measures in the Department.

(xvi) The laboratory safety rules should be prominently displayed in all the laboratories and workshops.

2. High voltage & electronics equipment:

(i) Before connecting or disconnecting any high voltage cable, make sure that the high voltage power supply is in the off mode.

(ii) Never modify or try to change any high voltage equipment. Always make sure that all capacitors are discharged through a grounded cable with an insulating handle before touching high voltage leads or the inside of any equipment even after it has been turned off as the capacitors can hold charge for many hours after the equipment has been turned off.

(iii) Before supplying current to any electrical equipment it should be ascertained that the equipment is properly earthed and the insulation provided in the cable is sufficiently strong.

(iv) Rubber / insulated mat must be laid on the floor of the electrical lab. Person must wear shoes in electrical lab.

(v) In case of an electrical shock, the first attempt of the attendant should be to switch off the connection immediately. If not possible, the shocked person be either pulled touching his/her cloth or pushed with a piece of dry wood standing on a dry wooden board or thick dry paper. In no case one should touch the body of the socked person.

(vi) In case of fire, do not throw water on a live conductor and equipment. It is dangerous. The best remedial measure is to disconnect the electric supply immediately. Fire extinguisher should not be used on electrical equipment unless it is marked as suitable for that purpose.

3. Mechanical:

(i) While using compressed air, use only approved nozzles and never direct the air towards any person.

(ii) Never start a machine unless all the safety guards are in position.

(iii) Exercise care when working with or near hydraulically- or pneumatically-driven equipment. Sudden or unexpected motion can inflict serious injury.

3. Radioactive sources:

(i) Know the properties of the radioactive source including half life, types and energies of emitted radiations and the annual limit on intake before using it in the laboratory.

(ii) Plan procedures to use the smallest amount of radioactive source possible and minimize waste.

(iii) The low activity radioactive sources used in the laboratory should be stored in the lead brick structure (hut). After using the radioactive source, it should be put back in the lead

brick structure (hut) again. No radioactive source should be left lying around in the laboratory.

(iv) All radioactive sources must be securely stored when not in use. All the radioactive laboratories must be locked and do not open unless a person authorized to work with the radioactive material is present.

(v) The radioactive sources must not be handled more than necessary.

(vi) If cut by glassware, injured by hypodermic needle, splinters, etc., containing radioactive materials, immediately wash the wound under a strong stream of water.

(vii) Any spills of the radioactive materials should immediately be covered with absorbent materials to prevent the spread of the material. Decontamination of the area must begin as soon as possible.

4. **Lasers:**

(i) Never allow a high power laser beam to enter your eye directly. One should not look at the laser beam reflected from a specular (mirror-like) surface. Always use beam stops to intercept laser beam.

5. **Chemical Spillage**: Acids and corrosive chemicals should be neutralized with soda ash (sodium carbonate) or sodium bicarbonate and the spillage of alkali be neutralized by covering with dry sand.

6. **Disposal of biological and chemical waste:**

(i) Do not dispose of chemical or any waste in the sink. The waste materials should be collected in the proper waste collector to dispose off.

(ii) Animal tissues must not be thrown in the laboratory garbage bin. It should be properly dispose off in the red or orange biohazard bags. All biohazards materials must be decontaminated before disposal.

7. Disposal of radioactive sources:

(i) Common waste management methods for low level radioactive waste include storage for decay and indefinite on site storage, burial low level radioactive waste site, incineration and sanitary sewer disposal.

(ii) The use and disposal of radioactive sources be followed as per the rules of the Atomic Energy Commission, India.