

St. Stephen's College, Delhi
Use and Maintenance of Physical, Academic, and Support Facilities

St. Stephen's College has a vast campus that is spread over 28.42 acres within the Delhi University Enclave in North Delhi and includes state of the art physical, academic, and support facilities for its students, teachers, and non-teaching staff.

The College constantly creates and improves its infrastructure to keep up with the changing needs and challenges of the teaching-learning process. The classrooms, laboratories, and the library are given particular attention to cater to the academic needs of the students.

The College has an Estate Office that is dedicated to the day-to-day upkeep and maintenance of the physical infrastructure including built space and green space. The Estate office under the Estate Officer has a set of skilled labourers, masons, carpenters, electricians, plumbers, and other specialists to undertake this duty.

The policy on use and maintenance of assets and facilities may vary across departments. However, the following general policy guidelines will apply to all Departments:

1. Every department must maintain a stock register of all the movable assets including equipment, supplies, and tools under the department.
2. Proper inspection must be done on a periodical basis. Regular audits and inspections must be conducted to keep a check on the stocks maintained by all departments. Inventory list may be submitted biannually/annually.
3. Weekly reports may be generated about the state of upkeep and repairs by every department.
4. All advanced and expensive equipment in all Departments will be maintained through an Annual Maintenance Contract (AMC). Smaller instruments and equipment can be repaired from time-to-time and maintained periodically.

This document will now outline some of the more specific rules and guidelines regarding the use and maintenance of the physical, academic, and support facilities on campus.

Classrooms

The College tries to incorporate the latest advances in ICT technology in all its classrooms so that the latest developments in audio-visual and distance learning can be deployed in the classrooms.

Use:

1. All classrooms are to be used by the teachers and students according to the approved timetable.
2. The classrooms may also be allotted for extra-curricular events, society activities and seminars with permission from the concerned authorities.
3. Those using the classrooms are responsible to ensure that that cleanliness and decorum is maintained in the classroom.
4. All lights, fans, and all other electronic and electrical equipment are to be turned off when a classroom is not in use.

Maintenance:

1. The day-to-day maintenance of the classroom is to be carried out by the housekeeping staff under the Estate Office.
2. The Estate Office is also responsible for carrying our yearly/periodical maintenance of the classrooms. In case of major repairs, the Estate Office may do it in consultation with the College Architect or any other expert as deemed necessary.

Seminar Room

Use:

1. The seminar room may be used for academic, extra-curricular, society activities, seminars, and short-term administrative activities with the permission from the concerned authorities.

Maintenance:

1. The day-to-day maintenance of the Seminar Room is to be carried out by the housekeeping staff under the Estate Office.
2. The Estate Office is also responsible for carrying our yearly/periodical maintenance of the Seminar Room. In case of major repairs, the Estate Office may do it in consultation with the College Architect or any other expert as deemed necessary.

College Hall

Use:

1. The College Hall may be used for academic, extra-curricular, society activities, seminars, morning assemblies and other College gatherings with the permission from the Principal.

Maintenance:

1. The day-to-day maintenance of the College Hall is to be carried out by the housekeeping staff under the Estate Office.
2. The Estate Office is also responsible for carrying our yearly/periodical maintenance of the College. In case of major repairs, the Estate Office may do it in consultation with the College Architect or any other expert as deemed necessary.
3. There shall be persons designated by the College to manage the lights and sound systems.

Common Rooms

The College has a Junior Common Room (JCR) for the use of all Junior members managed by the JCR Committee, a Ladies Common Room (LCR) for the exclusive use of female Junior Members and a Senior Common Room (SCR) exclusively for the faculty members.

Use:

1. The JCR is open to all current students of the College for using it as a recreational space.

2. The LCR is exclusively for use by the current female Junior Members of the College and the SCR is for exclusive use by the faculty members.
3. These facilities may be used for other non-designated academic, co-curricular or extra-curricular activities, and gatherings with the permission of the concerned authorities.

Maintenance:

1. The day-to-day maintenance of the JCR, LCR, and the SCR is to be carried out by the housekeeping staff under the Estate Office.
2. The Estate Office is also responsible for carrying out yearly/periodical maintenance of the JCR, LCR, and the SCR. In case of major repairs, the Estate Office may do it in consultation with the College Architect or any other expert as deemed necessary.
3. The JCR committee may make recommendations regarding the facilities in the JCR through the faculty member in charge.

Chemistry Lab

The Lab has instruments and equipment such as Potentiometer, Conductometers, pH meter, Calorimeter, Polarimeter, Colorimeter, UV-Vis spectrophotometers, Flame photometer; UV lamp chamber, Electrical melting point apparatus, Electrical water bath, Ovens, Centrifugation machines, Muffle furnace, Rotary evaporator, BOD incubator and Drill machine etc.

Use:

1. Bonafide regular students of B Sc (Hons) Chemistry; B. Sc. Programme with Chemistry; and students of other department of the college who take up GE in Chemistry, Chemistry teachers, and research students in our college can use the Chemistry labs.
2. Chemistry Students use it during their lab classes and other science students, research students, teachers from Physics/ Maths Department could use it with prior intimation/ permission from HoD and the concerned teachers.
3. Guidelines for proper use are typed in bold and pasted next to certain lab apparatus, chemicals and reagents, equipment and instruments for easy access and compliance by students, teachers and lab staff.
4. There are safety measures in place in case of an accident in lab. For e.g., functional fume hoods, exhaust fans, first-aid box in lab, sanitizers, continuous supply of tap, open spaces behind labs for carrying out organic reactions, water, eye wash station, sand, fire extinguishers, on campus nurse etc
5. All students are required to be acquainted with the Chemistry Lab Safety Manual before they work in the lab. The Safety Manual can be read by clicking [here](#).

Maintenance:

1. The maintenance of lab chemicals, apparatus, equipment cleanliness of lab, issuing and stock-taking of chemicals, apparatus and equipment is usually done by the lab staff and overseen by the Chemistry Department teachers.
2. The lab apparatus, equipment and instruments undergo periodic maintenance by lab staff and professional technicians regularly.

3. The proper day-to-day maintenance of every apparatus, equipment and instrument is regularly demonstrated to students by teachers during lab classes and lab staff.

Physics Lab

Use:

1. Primary User: Students enrolled in the course work under the Physics Department like B.Sc. (Physics Hons.) Physics, B.Sc. Programme (Physical Sciences), Generic Elective students.
2. Other Users include: a. Students doing project work with any faculty member of the Physics Department, can use the laboratory under the supervision of the concerned teacher and b. Students working for the Physics and Electronics Societies of the college under the guidance of the staff advisors.
3. Students are not allowed to enter the lab early unless the instructor is present. If they have to stay back and finish their experiments then they are required to take permission from the teacher conducting the lab.
4. The students should be thoroughly familiar with the apparatus and the procedure before they begin their experiments.
5. They should handle all the devices, equipment, chemicals and glassware with utmost care.
6. Students should not leave the laboratory without permission while performing any experiment.
7. As Mercury is extremely poisonous, the teacher overseeing the laboratory should be informed immediately if a mercury thermometer is broken. Care should be taken not to touch the spilt mercury with bare hands.
8. Eating is prohibited in the laboratories during the class.
9. The apparatus should be issued at the beginning of the laboratory class and should be returned after completion of their class.
10. The lights and fans should be switched off before leaving the laboratory
11. All students are required to be acquainted with the detailed Physics Lab Safety Manual before they work in the lab. The Safety Manual can be read by clicking [here](#).

Maintenance:

1. At the beginning of every semester, stock checking of all the laboratory apparatus is done by faculty members along with lab staff.
2. Every equipment is numbered for identification.
3. Every equipment is checked and tested for their proper working before the beginning of a laboratory coursework and then duly signed and dated by the testing authority.
4. A stock register, an issuing register, faulty equipment register and a complaint register are maintained in the laboratories.
5. A written receipt is kept by the Lab Staff if any item is issued to any teacher with the signature of the teacher concerned.
6. Any item issued to a student should be based on a receipt signed by the student concerned and the teacher in charge of the class.
7. A Students from any other college may be issued an item if they are part of an experimental Physics/Theoretical Physics group of the college and the item concerned costs less than Rs.5000 provided the teacher concerned is a cosignatory.

8. In case of any breakage of an apparatus, the students should immediately inform the concerned teacher and the lab staff.
9. If a device or an equipment becomes faulty while performing an experiment, the student should immediately report and write the nature of fault along with its assigned number in the complaint register.
10. The faulty components should be put in a separate box kept at the issuing counter.

Computer Science Lab

Use:

1. The lab is primarily used by students enrolled in B.Sc.(P) Computer Science and Students from Honours courses who have opted for Computer Science as their GE (General Elective) Paper.
2. It is also used by Students working for the Computer Science Society of the College under the guidance of the Staff Advisors.
3. Students are allowed to use the lab while the concerned teacher is present in the lab.
4. If any student wants to leave the lab in between for any exigency then she/he is required to take permission from the concerned teacher taking the class.
5. If the lab is free and any student wants to use the lab to finish her/his practical or do practice, then she/he is required to take permission from the concerned teacher and inform the STA (Senior Technical Assistant)
6. All users of the lab are required to handle all the devices, equipment and furniture with utmost care.
7. All users of the Laboratory are required to maintain proper decorum and avoid misdemeanour.
8. The laboratory is to be kept neat and clean.
9. Drinks and eatables are not allowed in the lab.
10. Switch off the Air Conditioners, lights and fans are to be switched off when the laboratory is not in use.
11. All students are required to be acquainted with the detailed Computer Science Lab Safety Manual before they work in the lab. The Safety Manual can be read by clicking [here](#).

Maintenance:

1. Lab infrastructure such as furniture, air conditioner, fans, lights, fire extinguisher etc., are maintained by the Estate office of the college.
2. At the beginning of every semester or whenever required during semester, software installation in lab computers is done by STA, as per the requirement of the subjects being taught.
3. No one other than the STA is authorized to install/ remove any software.
4. Prior to the Practical Examinations, all unwanted data from the computers is deleted and the machines are prepared for the examinations by the STA.
5. Users should not attempt to repair, open, temper or interfere with any of the computers, printers, cables, Air Conditioners or other equipment.
6. In case of any breakage of the equipment, the same should immediately be informed to the STA.

7. The new machines in the lab are under warranty and are maintained by the Vendor. Remaining machines (which are out of warranty) are also maintained by vendor but on call basis as and when required under supervision of STA.
8. Do not remove anything from the computer lab without permission of the STA.
9. All users are required to follow the directions of the STA.

Library

St. Stephen's College Library is as old as the College itself. Established in the year 1881 and moved to the current location in the year 1941, it has a rich history of its own. What started in a small room with one book cabinet and a few books as its collection in the year 1881, has now grown to be a fully automated and airconditioned Library with two full-fledged wings known as the Old wing and the New wing, and has a collection of more than one lakh books. The College Library stands today with a total covered area of 993.10 sq. metres.

Use:

1. All current students, teachers, and those with permission from the concerned authorities are allowed to access and make use of the facilities in the library.
2. The Library is automated using Troodon 5.5 software. The OPAC helps the users to search through vast collection in the Library.
3. The Library reading room has a total seating capacity of 222.
4. The Library has a separate textbook section containing multiple copies of textbooks for different courses offered by the College.
5. The Library has more than 7000 books in the rare book section. These books are useful source of information for study and research.
6. The Library also has a rare collection of more than 4000 Persian books. Some of these books are rare and not available in any other library.
7. Video Library: A separate video-library section is developed where students and faculty members can watch videos, films and documentaries on various topics such as arts, history, culture, science etc. Users are allowed to issue CDs, DVDs and VHSs from the Library collection.
8. Computer Section: The Computer and Internet Area for Research provides Internet and Intranet facility to the users for their research needs.
9. Faculty Room: A separate room has been allocated for the faculty members with reading space and internet, scanning and xeroxing facility. Separate lockers are also provided for faculty members in the Library.
10. Archives: The College Archives possesses a rich collection of historical documents and photographs. It also contains rare archival materials such as photographic slides, videos, books, maps, artifacts, published material like College Journals etc. The rarest collection of the Library is the TORAH Scroll which is almost 250 years old.
11. Scanning Division: The latest addition to the College Library is the Scanning Division containing the Zeutschel OS 12002 scanner and AVISION Scanner. The scanning division focuses to meet all the digitization needs of the College inhouse.
12. Enabling Unit: The enabling unit of the Library is a separate facility designed for the visually challenged and differently abled students. It is equipped with Desktop computers with multimedia speakers, Headphones, LEX scanner and JAWS screen reading software. Besides

which various other scanners like Horizon, Sara CE, HP Scanner, Zoom Ex Scanner etc. are available in this section. The Library staff help the students by scanning and providing the soft copies of the reading material to the students.

13. E-Resources: The Library is a member of NLIST, which is jointly executed by E-Shodh Sindhu Consortium, Inflibnet and INDEST-AICTE Consortium, IIT Delhi.
14. Besides NLIST, the Library also has access to e-resources through Delhi University Library System and E-Shodh Sindhu of UGC. The Library users have access to more than 126 databases, millions of e-books and more than 30,000 e-journals through NLIST, Delhi University Library System and E-Shodh Sindhu of UGC.

Maintenance:

1. The day-to-day maintenance of the Library is carried out by the housekeeping staff under the Estate Office, and the Library Staff under the guidance of the librarian.
2. The Librarian is also responsible for carrying out yearly/periodical maintenance of the Library through the Estate Office. In case of major repairs, upon requested by the Librarian, the Estate Office may do it in consultation with the College Architect or any other expert as deemed necessary.

Sports Facilities

The sports facilities of the College include a full-size football field, tennis courts, badminton courts, basketball court, squash courts, table tennis, volleyball court, and shooting range.

Use:

1. The Sports Infrastructure of the College is intended for the exclusive use of current students and Faculty Members of the College of Stephen's College, Delhi. No visitor, former student, family member or outsider is allowed to access or use the equipment/s.
2. These rules are to be followed in all sports facilities of the College such as the Football Play Field, Basketball Court, Tennis Courts, Volleyball Court, Shooting Range, Badminton Court Squash Courts and Table Tennis.
3. For rules related to the College Gymnasium, refer to the specific rules of the Facility.
4. These Sports Facilities of the College are considered as temples of learning that aim to develop the overall personality in the student athletes of the college. All users are required to treat the facility, equipment, players and staff with respect and courtesy.
5. All Students should wear appropriate apparel and footwear to comply with the requirements of the sports facility, otherwise the access to and use of such facilities will be refused. Sports related training clothes should be worn with proper sports footwear. Students should not play in formal clothes and Leather shoes and heels are prohibited.
6. Anyone who is training for Fitness and/or Exercise in the Sports facility/infrastructure in the College is advised to take a personal appointment with a medical physician for a complete check-up.
7. Students who have been advised to avoid physical activity or exercise should avoid training in the Sports facility and can meet the Department of Physical Education for other possible opportunities. It is considered the students who do not submit a written intimation of special needs or medical requirements is considered healthy to indulge in physical activities and exercise.

8. In case of any special needs the student can approach the Department of Physical Education and submit the medical advisory or Certificate.
9. Students suffering from any form of Communicable Disease must duly inform the authorities. Till the time they are not cleared by the Doctor (fitness certificate) he/she should avoid using the Sports facility or other sporting facilities.
10. In case of any injury or accident the causality will be given basic first aid by the College Medical staff. Any further treatment is to be done by the individual on a personal level.
11. Presence in the playground/playing courts is only for those limited to using the facility. People who are not making use of the facility for sport and/or games are not allowed in the area.
12. The maximum number of people who can be at a given time in the sports facility is given below:
 - a. Football Play Field: 50
 - b. Basketball Court: 25
 - c. Tennis Court: 08
 - d. Volleyball Court: 12 to 20
 - e. Shooting Range: 08 – 10
 - f. Badminton Court: 04
 - g. Squash Court (2): 02 per court
 - h. Table Tennis: 04 per table
13. The College sports facilities/infrastructure is for specialized places dedicated for training sport specific and athletic skills of the students. The first priority to train and play on these facilities is with the College Team. Students, who wish to practice otherwise, must select another time that does not clash with the practice of the College Team/s.
14. Students are encouraged to train on these facilities and should always carry their College ID Card in person
15. Smoking, eating and drinking (except water) is prohibited in the College Sports facilities at all times.
16. Anyone who is new to sports training can request for a formal Induction (with the Team Captain or Coach or Senior Player or the Department of Physical Education with prior appointment) to acquaint themselves to the sport – their training, precautions and dangers related to sport related training.
17. Persons using the equipment in the playfield or playing courts are responsible for their own safety. They are advised to seek advice and assistance from the Team Captain or Coach or Department of Physical Education if necessary.
18. For the safety of all users, please refrain from stopping or interfering in others' use of the equipment in the facility.
19. For the benefit of all, students can be issued with sport specific equipment by submitting a copy of their ID Card. The issued item/s will be sole responsibility of the issuer. Any damage to the facility or equipment would be born the concerned student or faculty and replacement be made at market rate/s of the damaged equipment. Users are responsible for any damages to the facilities or equipment.
20. Except for Facility related activities, no other activities (commercial or religious activities) are allowed in these facilities without prior written approval from the College Principal and Department of Physical Education.

21. Private Personal coaching, assessments and other related activities are not allowed in all venues without prior authorization from the College Principal and the Department of Physical Education.
22. User are requested not to speak loudly or shout unnecessarily inside the sport facilities of the college.
23. Playing loud music during Sports Training, Team practice or Match is strictly disallowed.
24. The use of personal towel is advised for personal hygiene and in order to avoid possible contagions. Once you have finished your session, do not leave the towel in the facility.
25. In case of any complaints, you should immediately contact the Team Captain or Coach and the Department of Physical Education.
26. Users are responsible for their own property and safety. The College will take no responsibility for the loss, theft or damage of belongings brought into the facility by users.
27. The General Rules and Regulations of the College related to discipline especially bullying and respecting women are also applicable to this facility.
28. Carrying personal equipment or any kind of weapons or firearms anywhere in the College is not allowed and strictly prohibited.
29. The College will not be held responsible for any loss, injury or death of anyone using the facility.
30. Failure to comply with the above rules may result in loss of sports facility access and related privileges.
31. All users are required to follow the instructions of the College Team Captain, Coach and Teachers from the Department of Physical Education.
32. The College reserves the right to amend these rules and regulations without prior notice

Maintenance:

- The Department of Physical Education also oversees the maintenance of the sports facilities in the college. The same is achieved through a daily program of supervision and coordination undertaken by the workers and grounds men of the College.
- The Department has for the purpose of maintenance of the playfield the following equipment:
 - 1. Lawn Mover (Two)
 - 2. Handheld Grass Cutter, etc.

Gymnasium

Use:

1. The Gymnasium is intended for the exclusive use of current students and Faculty Members of the College of Stephen's College, Delhi. No visitor, former student, family member or outsider is allowed to access or use the equipment/s.
2. Presence in the Fitness area is for those limited to using the equipment. People who are not making use of the gym are not allowed in the area.
3. The maximum number of people who can be at a given time in the gym is 15
4. All Students should wear appropriate apparel and footwear to comply with the requirements of the Gymnasium, otherwise the access to and use of such facilities will be refused. Workout

clothes should be worn with proper sports footwear. Students should not wear formal clothes to workout in the Gym. Leather shoes and heels are prohibited.

5. Anyone who is training for Fitness and/or Exercise in the Gym or any other sports infrastructure in the College is advised to take a personal appointment with a medical physician for a complete check-up. Students who have been advised to avoid physical activity or exercise should avoid training in the Gym and can meet the Department of Physical Education for other possible opportunities. It is considered the students who do not submit a written intimation of special needs or medical needs, is considered healthy to indulge in physical activities and exercise.
6. In case of any special needs the student can approach the Department of Physical Education and submit the medical advisory or Certificate.
7. Students suffering from any form of Communicable Disease must duly inform the authorities. Till the time they are not cleared by the Doctor (fitness certificate) he/she should avoid using the Gym or other sporting facilities.
8. The College Gym also houses the Badminton, Squash and Table tennis facilities of the College.
9. The first priority to train and play on these facilities is with the College Team. Students, who wish to practice otherwise, must select another time that does not clash with the practice of the College Team/s.
10. Logging ones Daily Attendance in the Gym is mandatory (In Time and Out Time) for all students using the Gym. Students in the Gym should always carry their College ID Card in person.
11. Smoking, eating and drinking (except water) is prohibited in the Gymnasium at all times.
12. Anyone who is new to Gym training can request for a formal Induction (with the Gym Secretary or the Department of Physical Education with prior appointment) to acquaint themselves to the working of different equipment – their utility, precautions and dangers related to strength and conditioning training.
13. Persons using the equipment in the Gymnasium are responsible for their own safety. They are advised to seek advice and assistance from the Gym Secretary if necessary.
14. For the safety of all users, please refrain from stopping or interfering in others' use of the equipment in the Gymnasium.
15. For the benefit of all, it is requested that you return equipment to the corresponding place when finished.
16. The College encourages students to train for health, fitness and wellness by balancing personal health with academics. The College Gym is not meant for absolute Body building purposes.
17. Except for Gym activities, no other activities (commercial or religious activities) are allowed in the Gymnasium without prior written approval from the College Principal and Department of Physical Education.
18. Private coaching, assessments and other related activities are not allowed in all venues without prior authorization from the College Principal and the Department of Physical Education.
19. Users of the facility are requested not to speak loudly inside the Gym.
20. Please mute mobile phones and pagers while in the Gym. Students who have to use their phones can take their calls outside the Gym. Playing music during the Badminton, Table tennis or Squash Practice or Match is strictly disallowed.

21. The use of personal towel is required in order to avoid possible contagions and the deterioration of the machines. Once you have finished your session, do not leave the towel in the Gym.
22. In case of any doubt, complaints on using Gym equipment or equipment breakdowns, you should immediately contact the Gym attendant and the Department of Physical Education.
23. Please handle the equipment in the Gymnasium with care. Users are responsible for any damages to the facilities or equipment.
24. Any damage to the facility or equipment would be born the concerned student or faculty and replacement be made at market rate/s of the damaged equipment.
25. The College will take no responsibility for the loss, theft or damage of belongings brought into the Gymnasium by users.
26. The General Rules and Regulations of the College related to discipline especially bullying and respecting women are also applicable to this facility.
27. Carrying personal equipment or any kind of weapons or firearms to the Gym is not allowed and strictly prohibited.
28. Users are responsible for their own property and safety.
29. The College will not be held responsible for any loss, injury or death of anyone using the facility.
30. Failure to comply with the above rules may result in loss of gym privileges.
31. All users are required to follow the instructions of the College Gym staff.
32. The College reserves the right to amend these rules and regulations without prior notice.

Maintenance:

1. The Department of Physical Education also oversees the maintenance of the Gymnasium. The same is achieved through a daily program of supervision and coordination undertaken by the workers and grounds men of the College.

Internet Resource Centre (IRC)

The Internet Resource Centre (IRC) has over fifty computers connected to high-speed internet that can be used by students and teachers who wish to use them for academic and official work.

Use:

1. All current students, teachers, and those with permission from the concerned authorities are allowed to access and make use of the facilities in the Internet Resource Centre.
2. The IRC also provides print outs for students and teachers at a nominal cost.
3. All users of the IRC are required to maintain proper decorum and avoid misuse of the internet facility.
4. The IRC is to be kept neat and clean.
5. Drinks and eatables are not allowed in the IRC.
6. All computers, air conditioners, lights and fans are to be switched off when the IRC is not in use.
7. Users are not allowed to install/uninstall applications on the computers without the permission of the IRC in charge.

8. Keep a record of All staff/students: the use of computers in the Computer Usage Register mentioning time-in/out.
9. Students/Staff must maintain silence inside the Computer Lab.
10. All Pen Drives/Memory Cards etc. are to be scanned for malware before use
11. Internet facility will be strictly for educational purposes only.
12. Users should not attempt to repair or tamper with any part/s of the computer or any other device in the Computer Lab.
13. Users should not change the settings of any equipment/device in the Computer Lab
14. Use/consumptions of objectionable or pornographic material is strictly prohibited.

Maintenance:

1. Annual Maintenance Contracts are to be maintained for the maintenance of campus IT infrastructure by the IRC in charge.
2. The housekeeping staff will take care of the day-to-day cleaning of the IRC.

St. Stephen's College

Department of Chemistry

Safety Manual and Designation of Duties for Laboratory Work

Students should read the given information very seriously and follow all the instructions before they began the lab work. We can avoid many accidents by simply using good judgement and common sense. We must realize chemistry labs are places full of potentially hazardous chemicals. It is expected that students behave responsibly and seek the advice of the teacher concerned in case of any doubt. If you don't understand something, ask your teachers, never guess!!

We must always remember a few basic important points listed below:

1. Always wear gloves and glasses.
2. Always wear proper clothing and shoes.
3. Never work in the lab without your lab coat.
4. Long hair must be tied back to avoid catching fire.
5. Eating is strictly prohibited in the chemistry laboratory.
6. Do not try to perform unauthorized experiments in the lab.
7. All chemicals must be treated as hazardous substances.
8. When you prepare something label your compound. Write the name of the compound and date of synthesis.
9. When you use any chemical and are left with some extra amount do not transfer it back to the container or reagent bottle. It might contaminate the pure sample.
10. Use volatile, inflammable compounds only in the fume hood.
11. Never taste or ingest chemicals or materials in the lab.

12. No compound or solvent should come in contact with your skin. Wear gloves recommended for the chemical you are handling. Neoprene, vinyl plastic, rubber latex, nitrile, synthetic and natural latex gloves are available. The MSDS tells you the gloves most appropriate for handling a chemical.
13. Keep your working place neat and clean. Also make sure the sink is not blocked.
14. Always read the reagent bottle labels twice before you use the reagent. Be certain the chemical you use is the correct one.
15. Never leave your bench when a reaction is under progress.
16. Never leave a Bunsen burner on when not in use.
17. Report all accidents i.e. spills, burns etc. however minor to your teacher.
18. In case of any breakage, do not clean it yourself. Inform the teachers.
19. Return all lab materials and equipment to their proper places after use as instructed.
20. Clean all spills immediately as per protocol necessary for the compound.
21. Never pipette a liquid using your mouth. Use a manual or electric pipette sucker.
22. Keep your working place neat and clean. Also make sure the sink is not blocked.
23. Do not light burners with filter papers. Use a match stick. Do not throw the burnt matchstick in the sink.
24. Dispose of all waste as per standard protocol.
25. Learn the location and proper usage of the fire extinguisher in the lab.
26. Check the flash point of each organic solvent you use. Solvent flash points that are below room temperature can form an invisible vapour cloud that can be ignited by any spark and cause a fire or explosion.
27. Conduct yourself in a responsible manner at all times. You must assume responsibility for your safety and that of your neighbours. The lab is a community where students must watch out for each other's safety as well as for themselves.

What are hazardous substances and how do we protect ourselves from them?

Hazardous substances

- A hazardous substance produces adverse effects on humans and the environment. We need to assess the toxicity of the compound and how we are exposed to it.
- Before using any chemical, it is important to understand what the potential exposure hazards may be and how to use the chemical safely.
 - Inhalation is the most common route of chemical exposure. Many chemicals have distinct odours. When we are exposed to an odour for long at low concentrations or if we are exposed to high concentrations of that particular substance, it may seem that the odour has diminished. The substance still remains a health hazard. *H₂S is a classic example. It can be smelled at low levels, but with continuous low-level exposure or at higher concentrations one loses the ability to smell the gas even though it is still present. At high concentrations the ability to smell the gas can be lost instantly. Relying on the sense of smell to detect H₂S is hazardous.*
 - Some chemicals may be absorbed by the skin and directly enter the blood stream. This is why wearing gloves and protective clothing like lab coats become important. If one accidentally comes in contact with the skin one should rinse the affected area with water repeatedly. Our eyes are very sensitive, chemicals coming in contact with eyes can lead to injuries and blindness. Eyes should be rinsed with water repeatedly if this happens. Wearing safety glasses is therefore imperative in the lab.
 - Eating and drinking without washing hands thoroughly after working in a chemistry laboratory increases the risk of chemical exposure.
 - *Flammable chemicals: Flammability* is the tendency of a chemical to burn. *Flammable* and *combustible* chemicals are solids, liquids or gases which vaporise readily. We usually encounter flammable liquids in our lab. The vapour easily ignites in the

presence of an ignition source. Flammable chemicals will generate sufficient vapours at temperatures below 37.8 °C. Combustible materials generate sufficient vapours at or above 37.8 °C. Flash point, boiling point and ignition temperature are important parameters according to which flammable chemicals are classified.

- *Flash point* is the lowest temperature at which a flammable liquid gives off sufficient vapour to ignite.
- *Boiling point* is the temperature at which the vapour pressure of a liquid is equal to the atmospheric pressure.
- *Ignition* temperature is the lowest temperature at which a chemical will ignite and burn independently of its heat source. This means at the ignition temperature no external heat source is required

Common solvents in the lab

- In the lab we use many organic solvents. Solvents like ether, alcohols, toluene, etc are highly volatile and flammable. Ethanol has a flash point of +12°C, toluene +4 °C and acetone -19°C. Always use them in a fume hood. Their flash points are below room temperature therefore they are major fire hazards. Carbon disulphide has an autoignition temperature of 100°C and diethyl ether 160°C.
- Flames of flammable chemicals like methanol and hydrogen are invisible and accumulation of vapour can result in a flashback.
- All chlorinated solvents like chloroform, carbon tetrachloride trichloroethylene (TCE), or methylene chloride are non-flammable but no less dangerous. They produce carbon monoxide, phosgene and other highly toxic gases on exposure to heat or flame. They can be absorbed through the skin and are suspected carcinogens.
- We should control the ignition source, vapour production source and the oxygen source to reduce the fire risk.
- Oxidizing substances need to be handled with care. Oxidizing chemicals are materials that spontaneously evolve oxygen at room temperature or with slight heating or promote combustion. Substance such as chlorate, permanganate, peroxides, nitrates, perchlorates yield oxygen readily and cause combustion of organic matter.

What should you do to keep yourself safe in the lab

Lab Safety

Never wear open-toed shoes in the lab.



Always wear safety goggles when working in the lab.



Never leave garbage in around the classroom. Always clean it up.



No food or drinks in the lab.



Always discard any broken glass in the broken glass container.



If chemicals get in your eyes, use the eyewash station to clean them.



Always wear safety gloves when working in the lab.







How do we find out the type of hazard associated with a particular compound?

Hazard Warning - Words, pictures, symbols, or a combination appearing on a label convey the hazards of the chemical in the container and this is extremely important.

Before using any chemical always read its Material Safety Data Sheet (MSDS)

Material Safety Data Sheet (MSDS) – A compilation of information required under the US OSHA Hazard Communication Standard on the identity of hazardous substances, health and physical hazards, exposure limits and precautions.

Hazards: Set of inherent properties of a substance, mixture of substances, or a process involving substances that, under production, usage, or disposal conditions, make it capable of

causing adverse effects to organisms or the environment, depending on the degree of exposure; in other words, it is a source of danger.

Adverse Effects: Change in biochemistry, morphology, physiology, growth, development, or lifespan of an organism which results in impairment of functional capacity or impairment of capacity to compensate for additional stress or increase in susceptibility to other environmental influences.

Exposure: Concentration, amount or intensity of a particular physical or chemical agent or environmental agent that reaches the target population, organism, organ, tissue, or cell, usually expressed in numerical terms of concentration, duration, and frequency (for chemical agents and micro-organisms) or intensity (for physical agents) and the process by which a substance becomes available for absorption by the target population, organism, organ, tissue or cell, by any route.

OSHA (Occupational Safety and Health Administration) U.S. Hazard Pictograms

The hazard pictograms alert us to the presence of a hazardous chemical. They help us to know the harm these chemicals may cause to people or the environment. One or more pictograms might appear on the labelling of a single chemical.



Explosive (Symbol: exploding bomb)



Flammable (Symbol: flame)



Oxidising (Symbol: flame over circle)



Corrosive (Symbol: Corrosion)



Acute toxicity (Symbol: Skull and crossbones)



Hazardous to the environment (Symbol: Dead tree and fish)



Health hazard/Hazardous to the ozone layer (Symbol: Exclamation mark)



Serious health hazard (Symbol: health hazard)

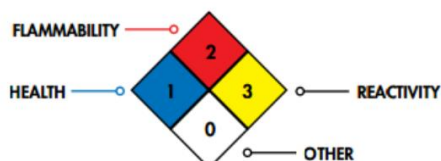


Gas under pressure (Symbol: Gas cylinder)

The **Hazardous Materials Identification System (HMIS)** is a numerical hazard rating that incorporates the use of labels with colour developed by the American Coatings Association as a compliance aid for the OSHA Hazard Communication Standard. The colour bar is not for emergencies and is used to convey broader health warning information.

The four bars are color-coded, blue indicating the level of health hazard, red for flammability, orange for a physical hazard, and white for Personal Protection. The number ratings range from 0-4.

The National Fire Protection Association system uses a diamond-shaped diagram of symbols and numbers to indicate the degree of hazard associated with a particular chemical or material. These diamond-shaped symbols are put on containers of chemicals to identify the degree of hazard associated with the chemical or material. The rating system utilizes a numeric system beginning with 0 as the least hazardous to 4, the most hazardous.



In 2003, the United Nations (UN) adopted the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). The GHS includes criteria for the classification of health, physical

and environmental hazards, as well as specifying what information should be included on labels of hazardous chemicals as well as safety data sheets.

Division of Duties

Store In-charge:

- To prepare annual budget for the department.
- To make proposal for purchases, seek quotations, and place orders etc.
- Assignment of duties or work allocation under the knowledge of the Head.
- Supervision of the Laboratory staff and overall monitoring.
- Handling of stock register/ Stock taking work.
- To prepare breakage charge list.
- To prepare / update apparatus, chemicals' name list etc.
- To keep track of safety measures and first-aid box etc. in the labs.
- To help during the conduct of the examination; overall monitoring of the staff and availability of all chemicals and instruments, to prepare list of requirements and budget for the examination, availability of answer scripts etc.

Lab Assistant:

- Making fresh solution for bench reagents and side shelf.
- Making distilled water.
- To be available to faculty during preparation for the next session and during conduct of practical classes.
- To be available to students during the conduct of classes.
- To help in issue of the apparatus (to be kept in students' lockers) once during the beginning of the session and daily issue of required apparatus as per the requirement during the beginning of every practical session.
- To monitor the return of the apparatus after each practical session and also during the end of the final year.
- To keep track of daily breakage etc. and final breakage at the end of the semester.
- To ensure safety of students during any breakage or spillage, or any other emergency.
- To check and servicing, repair / Maintenance of Instruments / Apparatus.
- To check and clean fume cupboards, digital balances, and Vacuum pumps on regular basis.
- To take care of gas maintenance with respect to regular supply, change of cylinders to check for any leakage etc.
- To help in operating fire extinguishers during any emergency.
- To help during the examination time with the preparation of the labs, solutions and other necessities.
- To help the store keeper with stock taking and other work.
- To help in the computer work, writing of letters, and various lists etc.

Lab Attendant:

- Daily cleaning of three labs, two balance rooms, two instrumentation rooms and two stores;
- Cleaning, storage, and maintenance of glassware and apparatus;
- To help senior assistants and store keeper with laboratory work, stock taking and other work.
- To help in the computer work, writing of letters, and various lists etc.
- Making distilled water.
- To be available to faculty during preparation for the next session and during conduct of practical classes.
- To be available to students during the conduct of classes.
- To help in issue of the apparatus (to be kept in students' lockers) once during the beginning of the session and daily issue of required apparatus as per the requirement during the beginning of every practical session.
- To monitor the return of the apparatus after each practical session and also during the end of the final year.
- To keep track of daily breakage etc. and final breakage at the end of the semester.
- To ensure safety of students during any breakage or spillage, or any other emergency.
- To take care of gas maintenance with respect to regular supply, change of cylinders to check for any leakage etc.
- To help in operating fire extinguishers during any emergency.
- To help during the examination time with the preparation of the labs, solutions and other necessities.

St. Stephen's College

Department of Physics Safety Manual for Laboratory Work

General Rules:

1. Students are not allowed to enter the lab early unless the instructor is present. If they have to stay back and finish their experiments then they are required to take permission from the teacher conducting the lab.
2. The students should be thoroughly familiar with the apparatus and the procedure before they begin their experiments.
3. They should handle all the devices, equipment, chemicals and glassware with utmost care.
4. Students should not leave the laboratory without permission while performing any experiment.
5. As Mercury is extremely poisonous, the teacher overseeing the laboratory should be informed immediately if a mercury thermometer is broken. Care should be taken not to touch the spilt mercury with bare hands.
6. Eating is prohibited in the laboratories during the class.
7. The apparatus should be issued at the beginning of the laboratory class and should be returned after completion of their class.
8. The lights and fans should be switched off before leaving the laboratory.

Safety Precautions for Electrical Circuit Experiments:

1. The current and power ratings of every electrical device should be checked before usage.
2. The positions and operations of safety switches on electrical equipment should be noticed before using it in a circuit.
3. Students must get all electrical circuits, including ones using batteries, made by them checked by teachers overseeing the laboratory before switching them on.
4. It should be ensured that the circuits are connected through a key or a switch so that the current doesn't continuously flow through the circuits.
5. The electrical circuits should be disconnected or completely dismantled before leaving the laboratory.
6. The polarities of various components should be checked to avoid short circuits.
7. The electrical circuit experiments should be performed on insulated or wooden surfaces.
8. Special care should be taken while performing experiments involving high currents.

Safety Precautions for Thermal Experiments:

1. The temperatures of heating devices especially Hot Plates should be monitored while performing thermal physics experiments.
2. Hot glassware should be handled carefully.
3. A very hot glassware should never be placed directly onto a cold surface.
4. Care should be taken to avoid spilling of hot water while boiling.
5. The equipment should be completely cooled down before stacking them in almirahs.

Safety Precautions for Darkroom Experiments:

1. The access to the darkroom should be limited.
2. Only students who have been allotted the darkroom experiments should be allowed to work in these rooms.
3. The dark room should be well ventilated.
4. Students should use covered hand lamps to perform their experiments and thus avoid disturbing other students with stray lights.
5. The darkroom should be clean and uncluttered to avoid tripping over objects.
6. The glass plates and lenses should always be with care to avoid breakage and getting hurt.
7. The Sodium and Mercury lamps should not be touched by hand when in use.
8. Students should never look directly into a laser light source.

Safety precautions for Experiments Involving Chemicals:

1. Students should use Nitrile gloves while handling chemicals and salts.
2. All glassware should be cleaned thoroughly before and after use.
3. The glassware should be kept at their designated place after using them.
4. Chemical should never be touched directly with bare hands.
5. A clean spatula should always be used to take out chemicals from the bottles to avoid contamination.
6. Containers should be held away from the body when transferring a chemical or solution from one container to another.
7. Chemical containers/vials should always be labelled as to the contents, concentration, date, and initials.

8. Used chemicals should not be casually disposed of down the drain instead should be disposed of in specified tanks only.

Safety Precautions while depositing Thin Films:

1. A safe distance should be kept while operating the thermal evaporation system.
2. The top lid of the spin coater and centrifuge should be closed while using.
3. It should be ensured that the exhaust of the rotary pumps is venting the gases in the open and not inside the room.

Regulations for the Computational Labs:

1. Students should receive laptops after doing proper entries in the issuing registers.
2. The laptops should be used with full care ensuring proper battery charging and hardware safety of the device.
3. Students are advised not to make any change in the root files/ directories of the operating system.
4. They are suggested not to save any personal data on lab laptops or take the backup of their data before returning it to the lab assistants.
5. The laptops must be properly shut down after the completion of their lab.
6. Students are advised not to use any virus affected external device on the lab computer systems.

St. Stephen's College

Department of Computer Science Safety Manual for Laboratory Work

General Rules:

1. Students are allowed to use the lab while the concerned teacher is present in the lab.
2. If any student wants to leave the lab in between for any exigency then she/he is required to take permission from the concerned teacher taking the class.
3. If the lab is free and any student wants to use the lab to finish her/his practical or do practice, then she/he is required to take permission from the concerned teacher and inform the STA (Senior Technical Assistant)
4. Handle all the devices, equipment and furniture with utmost care.
5. Do not misbehave and maintain proper decorum.
6. Keep the lab neat and clean.
7. Tea, coffee and eatables are not allowed in the lab.
8. Switch off the Air Conditioners, lights and fans before leaving the lab.

Safety Precautions while using computers in the Lab:

1. Use computers with full care ensuring hardware safety.
2. Do not make any change in the directories & files of the operating system.

3. Do not make any change in computer settings.
4. Save your work in your respective folders only.
5. Shut down the computers after completion of work.
6. Do not use any external device without authorization of the STA.
7. Do not save any personal data in the lab computers.
8. If a device or an equipment becomes faulty while working, the same should be immediately reported to the STA.
9. In case of any fire or accident, the same should immediately be informed to the teacher/STA.
10. Users are advised not to touch any of the power sockets while the device is connected and switched on.