St Ignatius College of Education (Autonomous)
Accredited with 'A+' Grade by NAAC with 3.42 CGPA (Third Cycle)
(Affiliated to Tamilnadu Teachers Education University, Chennai)
Palayamkottai-627002

PHYSICAL SCIENCE LABORATORY PRINCIPLES AND PROCEDURES – 2026-2027

The Physical Science Laboratory is a **structured and innovation-oriented learning space** where experiments in **Physics and Chemistry are carried out with precision and purpose**. These disciplines **depend on systematic experimentation, observation, and verification**, making laboratory engagement a **vital aspect of scientific education**.

ROLE:

The laboratory enables students to **immerse themselves in hands-on scientific inquiry**, encouraging them to **explore, experiment, analyze, and reflect**. Through these practices, learners **develop accuracy, critical insight, and a spirit of discovery**, essential for scientific advancement.

DESIRED OUTCOMES OF LABORATORY EXPERIENCES:

• Enhancing mastery of subject matter: Laboratory experiences **promote in-depth understanding and practical reinforcement of theoretical concepts**, enabling students to **integrate knowledge across various scientific domains**.

• Developing scientific reasoning: Laboratory work **strengthens analytical thinking, observational skills, and evidence-based reasoning**, guiding students to **approach problems with clarity, logic, and scientific temperament**.

PHYSICAL SCIENCE LABORATORY SAFETY RULES:

- Consumption of food or beverages is **strictly prohibited within the laboratory environment**.
- Students are not permitted to enter the laboratory **without the presence or consent of the instructor**.
- Wearing loose clothing or leaving long hair untied is **not allowed while working with laboratory equipment**.

- Appropriate safety equipment, including **protective eyewear, must be used during all experiments**.
- All apparatus should be positioned **securely to avoid accidental displacement or damage**.
- No electrical circuit or device should be operated **without prior verification and approval by the instructor**.
- Direct contact with live circuits must be avoided, and **electrical equipment should never be handled with wet hands**.
- Laboratory instruments must be used **carefully and solely for their designated educational purposes**.
- Looking directly at laser beams or **intense experimental light sources is strictly forbidden**.
- Waste materials must be disposed of **responsibly in appropriate containers, adhering to laboratory guidelines**. Chemicals should **not be disposed of in sinks unless explicitly instructed**.
- Altering electrical connections or dismantling equipment is **strictly prohibited and subject to disciplinary action**.
- Any damage to equipment or occurrence of chemical spills must be **reported immediately to the instructor**.
- All accidents or emergencies must be **communicated promptly for immediate assistance and safety measures**.
- Computer systems must not be tampered with or removed. They should be operated **only under guidance**, and students must ensure their **workstations are clean and (well-organized)** at the end of each session.
- Students must be aware of fire safety equipment locations. **Damage to laboratory property will result in penalties as per institutional norms**.
- Attendance and **active engagement in laboratory sessions are compulsory and integral to academic evaluation**.

Sr. A. Saraswathi Medona

PRINCIPAL
ST. IGNATIUS COLLEGE OF EDUCATION
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S. Jebasheela Jester

Signature of the Instructor

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PHYSICAL SCIENCE LABORATORY

PRINCIPLES AND PROCEDURES – 2025–2026

The Physical Science Laboratory is a dynamic learning environment where experiments in Physics and Chemistry are systematically conducted. These scientific disciplines rely heavily on observation, experimentation, and validation, making laboratory work an indispensable component of learning.

ROLE:

The laboratory provides students with opportunities to engage in experiential learning, enabling them to practice the core processes of science questioning, investigating, experimenting, interpreting results, and innovating. It also cultivates curiosity, precision, and analytical thinking among learners.

DESIRED OUTCOMES OF LABORATORY EXPERIENCES:

• Enhancing mastery of subject matter: Laboratory experiences **deepen conceptual clarity and reinforce theoretical knowledge through practical application**, helping students understand the **interconnected nature of scientific concepts**.

• Developing scientific reasoning: Laboratory activities **nurture logical thinking, problem-solving ability, and evidence-based reasoning**, thereby enabling students to **adopt a systematic and scientific approach to inquiry**.

PHYSICAL SCIENCE LABORATORY SAFETY RULES:

- Food and beverages are **strictly forbidden inside the laboratory premises**.
- Students should not enter the laboratory **in the absence of the instructor or without prior authorization**.
- Loose clothing and **unsecured long hair must be avoided** while handling equipment.
- Protective gear, including safety glasses, **must be worn during all experimental procedures**.
- Laboratory apparatus should be placed **securely and away from table edges to prevent accidents**.

- No circuit or equipment should be operated **without the explicit approval of the instructor**.
- Avoid contact with live electrical circuits and **never handle electrical devices with wet hands**.
- Laboratory equipment must be used **responsibly and strictly for academic purposes only**.
- Direct exposure to laser beams or **high-intensity light sources must be strictly avoided**.
- All waste materials must be disposed of **in designated containers, following proper laboratory protocols**. Chemicals should **not be discarded in sinks unless permitted**.
- Tampering with electrical connections or dismantling equipment is **strictly prohibited**.
- Any damaged equipment or chemical spills must be **immediately brought to the notice of the instructor**.
- All accidents and emergencies must be **reported without delay for prompt action**.
- Computer systems and accessories must not be removed or operated **without instructions**. Students must ensure that their **workspace is clean, organized, and properly maintained after each session**.
- Students should be aware of the location of fire safety equipment. **Any damage to laboratory property will result in appropriate penalties**.
- Regular attendance and active participation in laboratory sessions are **mandatory for successful completion of the course**.

S. Sebastheela Jenifer

Signature of the Instructor

Dr. L. Sasanthi Medona

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PHYSICAL SCIENCE LABORATORY PRINCIPLES AND PROCEDURES - 2024–2025

The physical science laboratory is a place where experiments in **Physics and Chemistry** are carried out. These branches of science **emphasize experimentation as an essential and integral component of learning**.

ROLE:

It is in the laboratory that physical science students **actively engage in scientific practices**, such as asking questions, performing procedures, collecting and analyzing data, drawing conclusions, and **formulating new ideas for further exploration**.

DESIRED OUTCOMES OF LABORATORY EXPERIENCES:

• Enhancing mastery of subject matter: Laboratory experiences **strengthen students' understanding of scientific concepts and principles**, and help them recognize how these are **systematically organized within scientific disciplines**.

• Developing scientific reasoning: Laboratory experiences **foster critical thinking and scientific inquiry skills**, enabling students to identify questions, analyze concepts, and **develop a sound scientific attitude**.

PHYSICAL SCIENCE LABORATORY SAFETY RULES:

- Food and drink are **strictly prohibited** in the laboratory at any time.
- Do not enter the laboratory early **unless the instructor is present and permission is granted**.
- Do not wear **loose clothing or keep long hair untied** around moving equipment.
- Wear safety glasses **whenever conducting laboratory experiments**.
- Do not place equipment too close to the edge of the table.
- Do not activate any circuit or apparatus **without prior inspection and approval from the instructor**.

- Never touch a possibly live circuit, and do not handle electrical equipment with wet hands.
- Use laboratory equipment **only for its intended instructional purpose**.
- Never look directly into the beam of a laser or **intense light sources used in experiments**.
- Dispose of all trash and waste materials in the proper containers. **Chemicals must not be poured into the laboratory sink unless instructed**.
- Do not short electrical leads or tamper with any apparatus or equipment.
- All damaged equipment and chemical spills must be **reported immediately** to the laboratory instructor.
- All accidents and emergencies should be **promptly brought to the attention of the instructor**.
- Do not remove any computer components (especially the mouse and keyboard). Do not operate computers unless instructed. **Ensure your workstation is left clean, orderly, and well-maintained** at the end of each session.
- Be aware of the location of fire extinguishers in the laboratory rooms. **Any equipment returned in a damaged condition will incur charges**.
- Regular attendance for laboratory work is **compulsory and essential for course completion**.

Sr. L. Saraswathi Medona

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S. Jebasheela Jenifer

Signature of the Instructor

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PHYSICAL SCIENCE LABORATORY

PRINCIPLES AND PROCEDURES-2023-2024

Physical science laboratory is a place where experiments on Physics and chemistry are carried out. These branches of science are where experimentation is an integral part.

ROLE:

It is in the laboratory that physical science students learn to practice the activities of scientists - asking questions, performing procedures, collecting data, analyzing data, answering questions, and thinking of new questions to explore.

DESIRED OUTCOMES OF LABORATORY EXPERIENCES:

- Enhancing mastery of subject matter. Laboratory experiences may enhance student understanding of specific scientific facts and concepts and of the way in which these facts and concepts are organized in the scientific disciplines.
- Developing scientific reasoning. Laboratory experiences may promote a student's ability to identify questions and concepts that guide scientific attitude.

PHYSICAL SCIENCE LABORATORY SAFETY RULES:

- Food and drink are not permitted during class in the lab at any time.
- Do not come in the lab early unless the instructor is present.
- Do not wear loose hair or clothing around moving equipment.
- Wear safety glasses during a lab experiment.
- Do not set equipment too close to the edge of the table.
- Do not activate any circuit or apparatus until the instructor inspects it.
- Never touch a possibly live circuit and do not touch electrical equipment with wet hands.
- Only use laboratory equipment for the instructional purpose for which they were intended. Never look directly in the beam of a laser and light from a lamp used for the experiment.
- All trash and waste materials should be disposed of in the proper container. Do not
- pour chemicals into the laboratory sink.
- Do not short the electrical leads on any equipment. Do not take apart any apparatus or piece of equipment.

- All damaged equipment and chemical spills should be immediately reported to the laboratory instructor.
- Accidents and emergencies must be immediately reported to the laboratory instructor.
- Never remove any computer components (especially the mouse and keyboard). Do not shut down or turn on (or log in) the computer unless instructed to do so by the
- lab instructor. Leave your lab station neat, clean and organized at the end of each lab period.
- Be aware that fire extinguishers are located in Rooms. Any apparatus used is broken or returned in damaged condition charges will be levied
- Regular attendance for laboratory work is mandatory.

Sr. L. Vasanthi Medona

N. Ori Sertef.
S. Jebasheela Jenifer.

Signature of the principal **Signature of the Instructors**

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PHYSICAL SCIENCE LABORATORY

PRINCIPLES AND PROCEDURES-2022-2023

Physics laboratory is a place where experiments of Physics are carried out. As we know physics is that branch of science where experimentation is an integral part of the core subject.

ROLE

It is in the laboratory that physical science students learn to practice the activities of scientists - asking questions, performing procedures, collecting data, analyzing data, answering questions, and thinking of new questions to explore.

DESIRED OUTCOMES OF LABORATORY EXPERIENCES:

Enhancing mastery of subject matter. Laboratory experiences may enhance student understanding of specific scientific facts and concepts and of the way in which these facts and concepts are organized in the scientific disciplines.

Developing scientific reasoning. Laboratory experiences may promote a student's ability to identify questions and concepts that guide scientific attitude.

PHYSICAL SCIENCE LABORATORY SAFETY

- Food and drink are not permitted during class in the lab at any time.
- Do not come in the lab early unless the instructor is present.
- Do not wear loose hair or clothing around moving equipment.
- Wear safety glasses during a lab experiment.
- Do not set equipment too close to the edge of the table.
- Do not activate any circuit or apparatus until the instructor inspects it.
- Never touch a possibly live circuit and Do not touch electrical equipment with wet hands.
- Only use laboratory equipment for the instructional purpose for which they were intended.

- Never look directly in the beam of a laser and light from a lamp used for the experiment.
- All trash and waste materials should be disposed of in the proper container. Do not pour chemicals into the laboratory sink.
- Do not short the electrical leads on any equipment.
- Do not take apart any apparatus or piece of equipment.
- All damaged equipment and chemical spills should be immediately reported to the laboratory instructor.
- Accidents and emergencies must be immediately reported to the laboratory instructor.
- Never remove any computer components (especially the mouse and keyboard).
- Do not shut down or turn on (or log in) the computer unless instructed to do so by the lab instructor.
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- Be aware that fire extinguishers are located in Rooms.
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- Regular attendance for laboratory work is mandatory.

Signature of the principal

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Signature of the Instructor