

SCIENCE & HUMANITIES · SEMESTER 1

BS105 · Applied Chemistry

Why Chemistry for your diploma?

A simple first class for MLT, FPT and CSWT students.

Class 1

Credits 3

L:2 T:1

Sheikhpara A.R.M. Polytechnic

I am here to help you learn.

Dr. Md Sahanawaz

Lecturer in Chemistry · HOD, Science & Humanities

- ▶ PhD in Chemistry — IISER Kolkata
- ▶ M.Sc. Chemistry — IIT Bombay
- ▶ Teaches Applied Chemistry, lab and Fundamental Chemistry
- ▶ Works on chemistry × data science (machine learning for molecules)
- ▶ Website: drsahanawaz.com

This course

BS105 Applied Chemistry

We go slowly.
We use daily-life examples.
You may ask anytime.
No one is left behind.

You do not need to be a “science topper”.

01

We go slow

One idea at a time.
We repeat. We practise.

02

We use daily life

Soap, rust, salt, oil,
blood test, phone battery.

03

Ask anytime

A doubt is not weakness.
It is the start of learning.

Chemistry is already in your day. We will only learn to see it.

Morning tea / food

Water, sugar, oil, salt — all chemicals.

Soap and bathing

Soap works poorly in hard water. Why? Chemistry.

Cycle / gate rust

Iron + air + water $\rightarrow$ rust. That is a reaction.

Phone in your pocket

Battery, plastic, glass, metal — chosen by chemistry.

Applied Chemistry = using chemistry to solve real work problems.

Not this

Long names to memorise
for fear of exam only.

But this

Why water is hard.
Why food spoils.
Why metal rusts.
Why a battery works.

Same chemistry. Different job.

MLT

Medical Laboratory Technology

You test blood, urine and water to help doctors.

FPT

Food Processing Technology

You turn farm food into safe, tasty, lasting food.

CSWT

Computer Software Technology

You build software — but machines still live in a chemical world.

A lab report is chemistry written as numbers.

Blood & urine tests

Sugar, urea, haemoglobin — these are chemical measurements.

Reagents & pH

Wrong pH or dirty water → wrong report → wrong treatment.

Hard water & glassware

Hard water leaves scale. Dirty glass changes your titre.

Sterilisation & safety

Know what a chemical can do — and what it must not do.

Food is chemistry you can taste.

Water in the plant

Hard water spoils boilers, bottles and cleaning.

Oil and fat

Rancid oil is a chemical change. Acid value matters.

Packaging plastic

PVC, bottles, packets — polymers we will name and use.

Preservation

Salt, sugar, heat, acid — kitchen methods, real chemistry.

Software is logic. Hardware is chemistry.

Battery & charging

Your laptop lives on a redox reaction. We will meet cells and Faraday.

Plastic & boards

Case, keyboard, insulation — polymers and materials.

Rust and heat

Fans, screws, server rooms: corrosion and cooling water matter.

Clean thinking

Ask: what is present? what changed? why?

Same water. Three different problems.

MLT

Hard water spoils glassware and changes lab results.

FPT

Hard water scales boilers and wastes soap in the plant.

CSWT

Hard water and rust damage machines that run your software.

About 40 classes. We will walk, not run.

01

Atoms & bonding

Why things join or stay apart.

02

Water

Hard water, softening, drinking water.

03

Materials

Iron, aluminium, cement, plastic.

04

Fuels & oil

Coal, LPG, engines, lubricants.

05

Cells & rust

Battery, electrolysis, corrosion.

Simple habits. Better marks. Less fear.

- 01 Listen first**
Copy after you understand the picture.
- 02 One notebook**
Theory + tutorial + lab in one place.
- 03 Numbers are friends**
Hardness, Dulong, Faraday — practised slowly.
- 04 Lab is the proof**
What we say in class, you will do with your hands.

TAKE HOME TODAY

**Chemistry is not a foreign language.
It is the reason your work will be safe
and correct.**

MLT — a correct test needs correct chemistry.

FPT — safe food needs water, oil and materials you understand.

CSWT — machines fail by rust, heat and bad materials — not only by bugs.

NEXT CLASS

**We start from the atom —
very slowly.**

Bring: notebook, pen, and one question from your department.
No need to study tonight. Just come.

Questions? Ask now.

Dr. Md Sahanawaz · BS105 Applied Chemistry

HOD, Science & Humanities · Sheikhpara A.R.M. Polytechnic

drsahanawaz.com