

INTERSHIP REPORT



A report submitted in partial fulfillment of the
equiurement for the award of degree of

BACHELOR OF SCIENCE

IN

CHEMISTRY

BY

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HIYOSHI india

Ecological Services Pvt. Ltd.

Certificate of Training

This is to certify that

Ms. V. Abitha

of

*Sathyabama Institute of Science and Technology (Deemed to
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*Successfully completed the "Internship" in the field of Water
and Wastewater analysis at Hiyoishi India Ecological
Services Pvt. Ltd., Chennai - 600 113, Tamilnadu, India*

From 11th to 26th September 2023.



Dr. M. MAYILSAMY
Director

ACKNOWLEDGEMENT:

I want to thank my advisers and everyone at the company for their patience and assistance during my on-site training. Thanks to their guidance, I was able to develop my industrial skills and learn about Waste water treatment by uv-spectroscopy analysis these skills will help me to expand my resume and advance my career.

ABOUT COMPANY:

Hiyoshi India Ecological Services Pvt. Ltd. was a result of the 25 years of interactive relationship between Hiyoshi and India through

Talk your way to Japan speech contest, conducted since 1998 to increase environmental awareness among school students in India

Hiyoshi Environmental Awards established in the year 2007 for recognising and felicitating the environmental warriors in India

Hiyoshi University Internship Program since 2007 for students to enhance their career and inspire them to work for the Environment.

ABK AOTS intern training since 1995 to increase environmental awareness among future leaders in the country

Hiyoshi India Ecological Services Private Limited a 100% subsidiary company of Hiyoshi Corporation, Japan was established in the year 2011.

To provide Hiyoshi's 70 years of acquired knowledge in the field of drinking water analysis, wastewater analysis, O&M of STP, solid waste etc. in Chennai.

UV SPECTROSCOPY ANALYSIS

INTRODUCTION:

- ❖ Ultraviolet-visible spectroscopy or ultraviolet-visible spectrophotometry (UV-Vis or UV/Vis) refers to absorption spectroscopy or reflectance spectroscopy in the ultraviolet-visible spectral region.
- ❖ Ultraviolet-visible (UV-VIS) spectroscopy is an analytical method that can measure the analyte quantity depending on the amount of light received by the analyte.

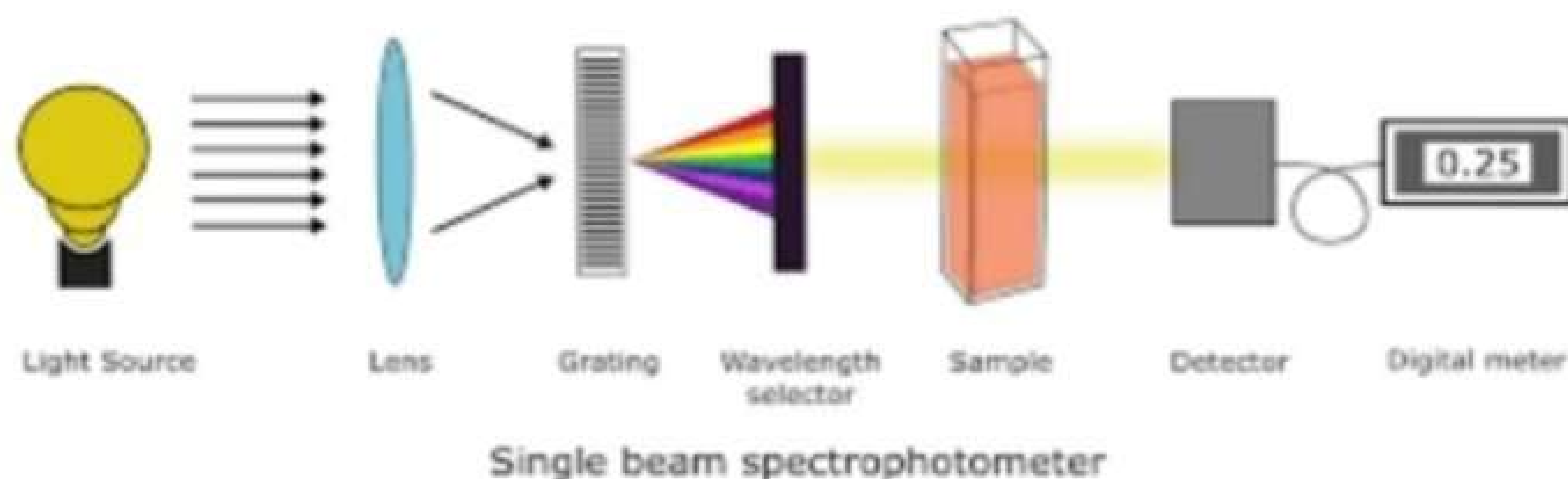
PRINCIPLE:

- ❖ It works on the principle of Beer Lambert's law which says amount of light passed or absorbed is directly proportional to path length and concentration of absorbent.
- ❖ Absorbance is more concentration and more absorbance
- ❖ Transmittance is more concentration and less transmittance
- ❖ Light is absorbed or transmitted in two ways
- ❖ UV range is till 340nm
- ❖ Visible range is till 700nm



INSTRUMENTATION:

- ❖ Light Source
- ❖ Monochromator
- ❖ Sample Stage
- ❖ Detector
- ❖ Readout Device



ADVANTAGES:

- ❖ Simplicity
- ❖ Low Cost
- ❖ Wide Availability

DISADVANTAGES:

- ❖ Low Sensitivity
- ❖ Limited Selectivity
- ❖ Interference From The Solvent Or Other Impurities.

APPLICATION:

- ❖ Molecular weight determination
- ❖ Quantitative analysis
- ❖ Detection of functional groups
- ❖ Detection of impurities

TO DETERMINE THE AMOUNT OF PHOSPHORUS IN WASTEWATER BY UV SPECTROSCOPY

PRINCIPLE:

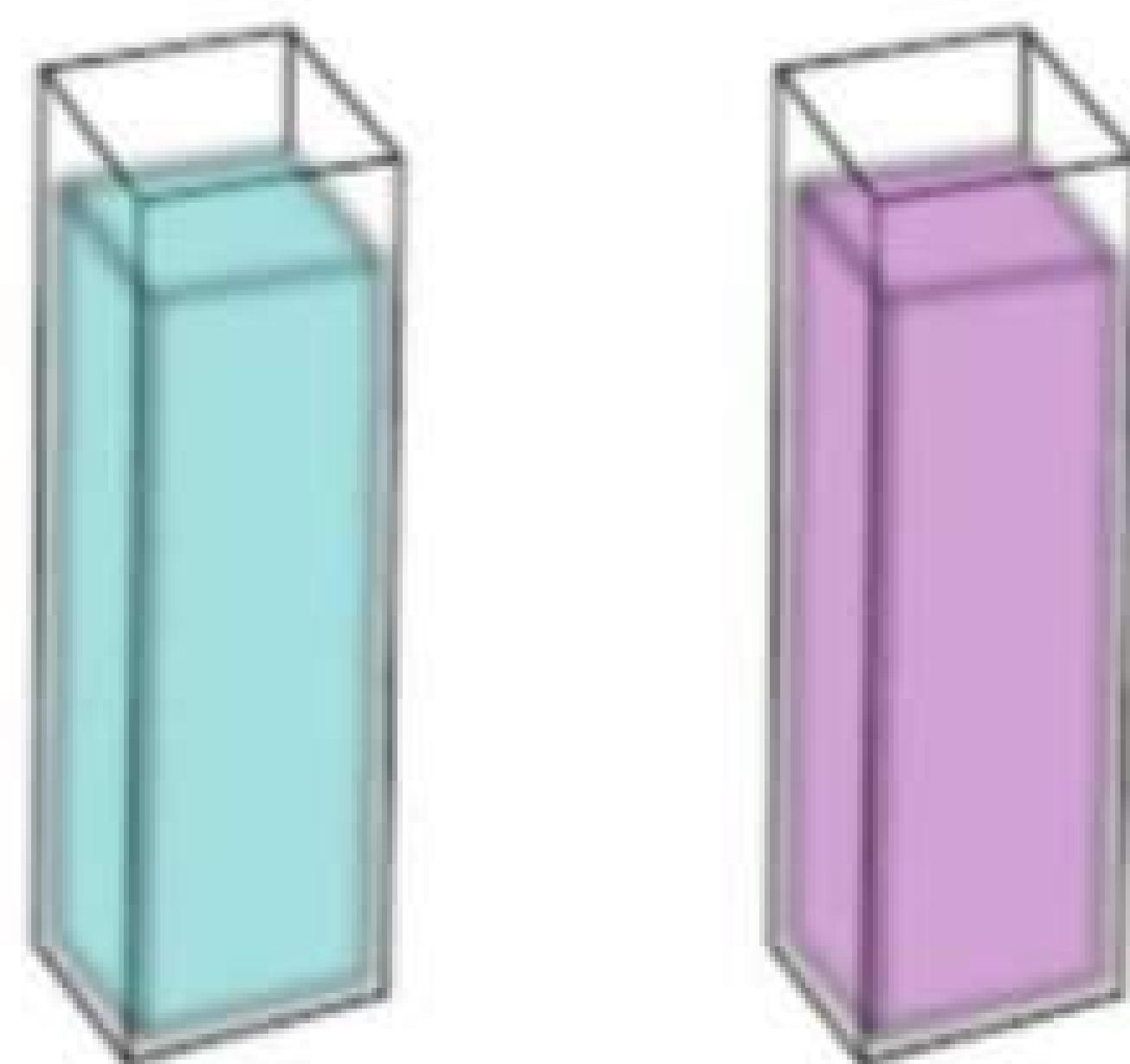
Phosphorus reacts with ammonium molybdate and tin (II) chloride to form blue coloured complex phospho molybdate₄ complex.

REAGENT REQUIRED:

- ❖ Phosphorus
- ❖ Ammonium molybdate
- ❖ Tin (II)chloride

PROCEDURE:

- ❖ Make 100ml standard with 0.1ppm,0.5ppm,1.0ppm,1.5ppm,2.0ppm.
- ❖ Add 4 ml ammonium molybdate.
- ❖ Add 0.5ml or 10 drops SnCl_2 and mix it well.
- ❖ It forms blue colour complex.
- ❖ Rest it at for 10 mins
- ❖ Measure the absorbance at 690nm



sample containers or cuvettes

TOTAL SUSPENDED SOLIDS

DEFINITION:

TSS stands for total suspended solids, and refers to waterborne particles that exceed 2 microns in size. Any particle that is smaller than 2 microns, on the other hand, is considered a total dissolved solid (TDS). The majority of total suspended solids comprise of inorganic materials; however, algae and bacteria may also be considered TSS.

DETERMINATION:

Total suspended solids (TSS) are defined as solids in water that can be trapped by a filter. To measure TSS, the water sample is filtered through a pre-weighed filter. The residue retained on the filter is dried in an oven at 103–105°C until the weight of the filter no longer changes.

FORMULA:

- ❖ TSS in mg/L can be calculated as: $(\text{dry weight of residue and filter} - \text{dry weight of filter alone, in grams}) / \text{mL of sample} * 1,000,000$.



Conclusion:

In a nutshell, this internship has been an excellent and rewarding experience. I can conclude that there have been a lot I've learnt from my work at Cemosis. Needless to say, the technical aspects of the work I've done are not flawless and could be improved provided enough time.