## Report on Field Work

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| **Title** | Bureau of Indian Standards, Peenya Industrial Area 1st stage, Bengaluru 560058 |
| Date of Event(s) | 20/01/2023 |
| Department / Association | Department of Science |
| Venue | Bureau of Indian Standards, Peenya Industrial Area 1st stage, Bengaluru 560058 |
| Number of Participants | 46 |
| Target Audience | Second and final year students |

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|---|---|
| Place of visit | Bureau of Indian Standards, Peenya Industrial Area 1st stage, Bengaluru 560058 |

### OBJECTIVE OF THE VISIT

To understand the standardization and quality control for growth and development of industry on one hand and to meet the needs of consumers on the other.

### INTRODUCTION

**What is BIS**

The Bureau of Indian Standards is the National Standards Body of India under Department of Consumer affairs, Ministry of Consumer Affairs, Food & Public Distribution, Government of India.

### LEARNING

This was an Field Visit to BIS, here we learnt and understood the process of how a standard is given to a product and why it is important to give standards. We visited few major Labs where products are given its standards.

Ex: Chemical Testing Lab, Instrumentation Lab, Cement Lab, Mechanical Lab, Environmental Lab, LED Lab, etc.

### CEMENT TESTING FACILITY

They have a cement testing facility to check for the strength and durability of the cement. The test is conducted on a cubical block of weight 800g whose composition is of 1:4 cement to sand ratio.

***Composition of the cement block:***

-200g of cement

-200g of Grade I Standardized Sand(IS650:1991)

-200g of Grade II Standardized Sand(IS650:1991)

-200g of Grade III Standardized Sand(IS650:1991)

The sample is used for testing of:

**-Strength**

Pressure is applied on the block of cement in kilo-newton units and checked whether it can withstand the pressure or would break down. They also make sure no cracks are formed during the test. This test is conducted for first 3 days after proper curing, then is again conducted for the next 7 days of curing and is again conducted for next 28 days.

**-Expansion & Contraction**

This test is conducted in the humidity chamber where they check apply steam and heat to check for cracks and durability of the block during expansion as well as during shrinkage. This is mostly done to check the durability of the cement in the long run.

**Setting time**

This time is referred to the time taken by the cement to reach its adequate state of proper durability and hardness. They should make sure that the cement is flexible enough to be carried away or applied on before drying up to its original state.

These are the tests conducted to produce a standard for the production of cement. These test are carried out with utmost caution and appropriate testing equipment to bring out the best results and output.

**Testing facility for Pressure Cooker, Frying Pan and Water Tank**

**Pressure Cooker**

-Tested on pressure cooker to handle 1.5 to 3kg pressure.

-They make sure there are two valves to release the pressure just as a safety measure.

**Tests:**

**-Leak test**

*The cooker is checked for leakage under 2kg pressure. This test is to make sure that the contents in the cooker does not spill out as well as the food is cooked properly without the leak of pressure from inside.*

**-Burning/Thermal test:**

This test is done to make sure that the material of the cooker is durable and heat is spread evenly this test also checks for the durability of the handle used on the cooker to check whether it can withstand heat.

**Proof Pressure Test**

This test is done to check for the for the withstanding capacity of the cooker. The cooker is checked to withstand 1.5 times its capacity by filling the cooker with silica and weight ball. This process is done on a proof test machine for 50000 times per piece.

**Frying pan**

**Tests:**

**-Coating test**

This test is done to check whether the coating in the inner surface of the pan wears off or not.

**-Thermal/Burning test:**

This test is done to check for the durability of the materials used in the pan as well as to check whether the handle can withstand the heat.

**Water Tank**

**Tests:**

**-Impact test**

This test is done to check whether the tank can withstand the pressure when it falls on the ground with or without water.

**-Capacity test**

This test is done to check whether the tank hold the capacity of water it is prescribed to hold as well whether the material gets damaged over time or not.

**-Thickness test**

The outer wall of the tank should be a certain thickness as not to affect the water as well as not get damaged in case of sudden a sharp object piercing it and rubbing against it.

**Testing facility for Electrical and Electronic equipments**

In this facility the testing of bulbs, capacitor, resistors, wires, circuits etc.

**Incandescent Bulb**

There are two varieties in this bulb mainly differentiated because of the holder at the bottom one being diamond type and the other being screw type.

**Tests:**

**Dimension of the bottom holder**

The bottom screw must hold on properly to on to the holder. For this, there is a standardized mold used to check for the accuracy of the bottom screw. Using this mold, pass the bulb test. This is done to avoid loose connection.

**Temperature on voltage**

The bulbs temperature levels are checked on certain level of voltages. This is to make sure that the bulb parts do not melt on increasing temperature which could cause short circuit.

**Dimensions of the bulb**

They make sure that the bulb is in proper size and shape. The round shell and the bottom tap must fix properly or it may lead to damage of the bulb.

**Caution test**

This test is conducted in a spherical photometer which is coated in white from the inside so that it does not absorb any photons which might disrupt the reading obtained during observation.

**Life cycle test**

The bulb is continuously kept on power with a maintained voltage in order to maintain check for the life expectancy of the bulb. Life cycle of the bulb is 1250hrs.

**Glow wire test**

This test in conducted on any product with plastic on it. Especially the CFL and LEDs. It is used to check for resistance against flame and ignition. This is done my placing a tissue paper in the chamber which must not catch fire upon melting of the product.

**Testing facility of Chemicals**

**Tests:**

**1. PH testing:**

The pH value may be determined either electrometrically or calorimetrically. The electrometric method is more accurate but requires special apparatus. The colorimetric method is simple and requires less expensive apparatus, and is sufficiently accurate for genera' work. It is, however, subject to Interference by colour. Turbidity, high sane content, free chlorine and various oxidant-sand reductants.

**2. Chemical Analysis:**

Chemical analysis can be used to determine a chemical's identity or the identity of its components, such as understanding why a product gives off a strong smell or locating what an organic contaminant is made of.

## 3. Standards Solution Preparation

A standard solution is a chemical solution where you know the concentration of a particular element or compound. It's prepared from a standard substance by weighing the substance and mixing it with specific volume of solvent to achieve the desired concentration.

**Outcome:**

In simple words BIS or Bureau of Indian Standards gives a product its own standards. Every single work here is done with passion, preciseness and with perfection. Every product gets a perfect standard for it and the tests the products go through is carefully undertaken and well maintained, even the raw materials used for the tests of a product are well standardized.

BIS very well thought us the importance of standards and even made us understand how important it is to make sure even others or the public know about standards.

BIS is a well-functioning and equipped industry by Central Government of India.

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## FIELD WORK AT BIS, BANGALORE

## LIST OF STUDENTS AND FACULTY MEMBERS

### III Semester BSc: A Section

| Sl.No. | Roll No. | Student Name |
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| 3 | U03MB21S0019 | Swapna V |
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| 6 | U03MB21S0067 | Keerthana M |
| 7 | U03MB21S0069 | Sankalpa R |
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| 3 | U03MB21S0061 | Ruchitha |
| 4 | U03MB21S0062 | S Ashmitha |
| 5 | U03MB21S0064 | Supriya S |
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| 6 | 20NCS85058 | Deepika D |
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| 8 | 20NCS85062 | Nishanthkalyan B |
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| 12 | 20NCS85068 | Yakshith C |
| 13 | 20NCS85059 | Kanaka T |
| 14 | 20NCS85066 | S Praveena Shree Thanuja |
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| 16 | 20NCS85061 | Monika S |
| 17 | 20NCS85051 | Akash Y |
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| 4 | 20NCS85044 | Mallesh N |
| 5 | 20NCS85045 | Manikanta R |
| 6 | 20NCS85049 | Sahil Mollah |
| 7 | 20NCS85048 | Rentala V M Sreeja |
| 8 | 20NCS85043 | Madhan P S |
| 9 | 20NCS85041 | Harshith S |
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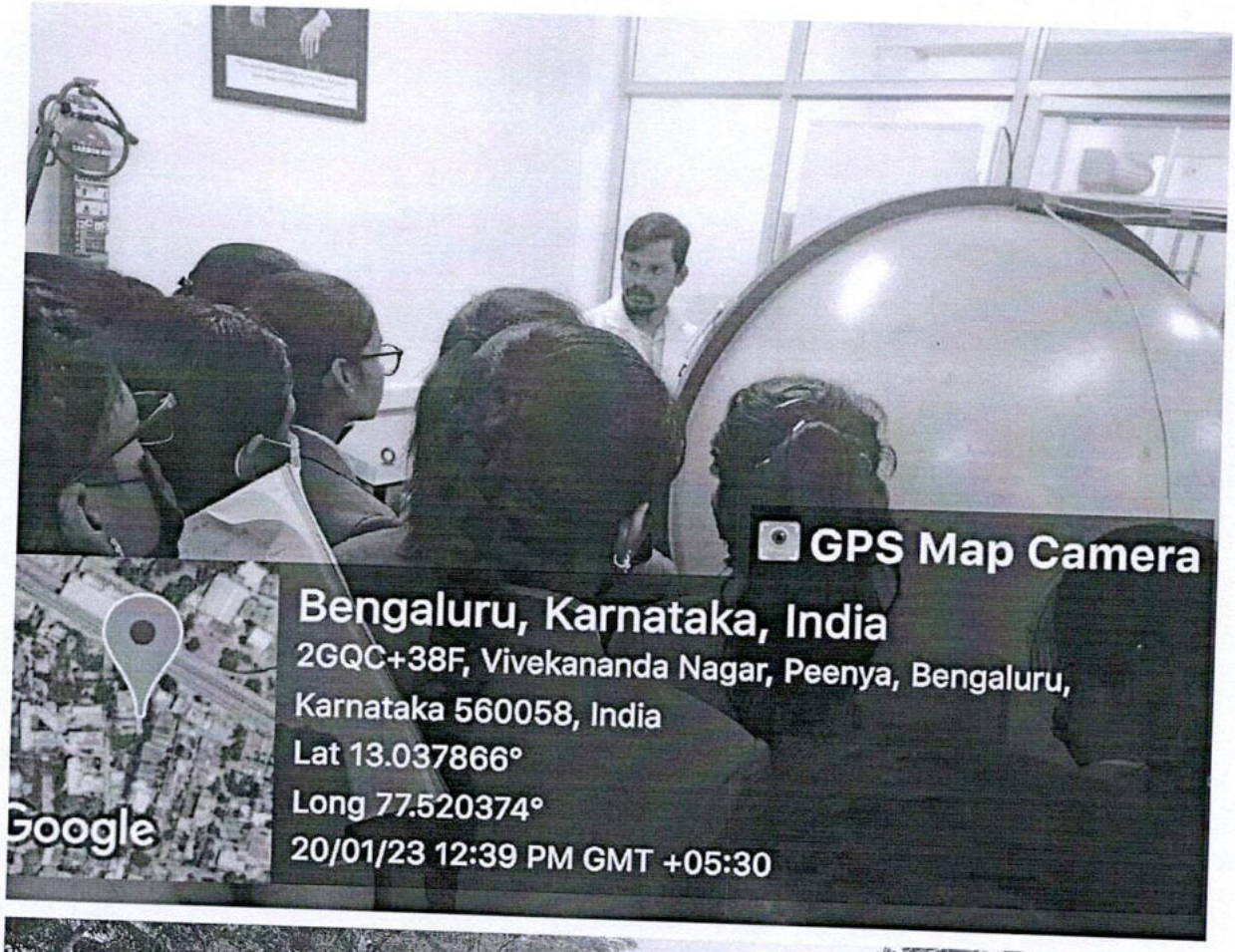
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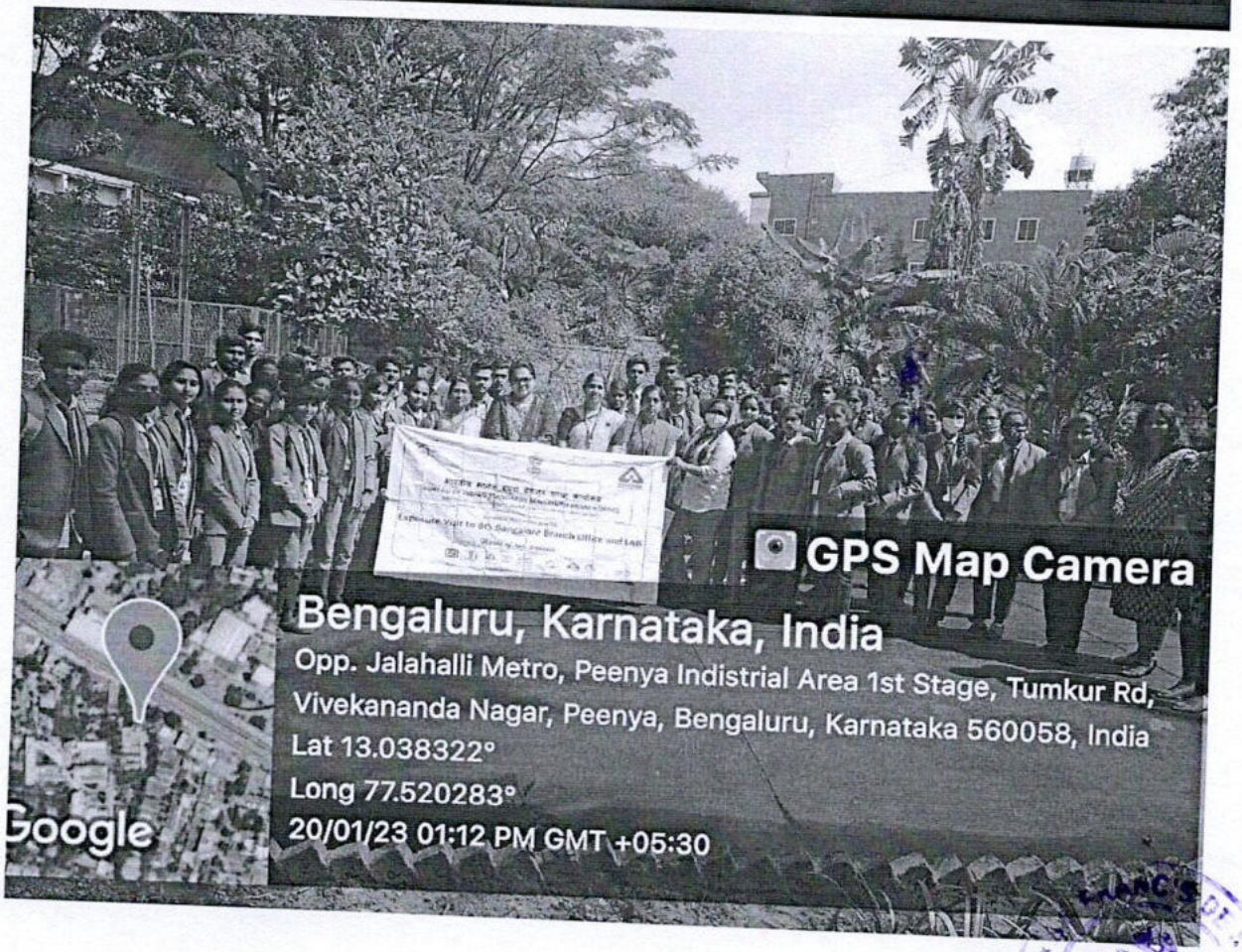
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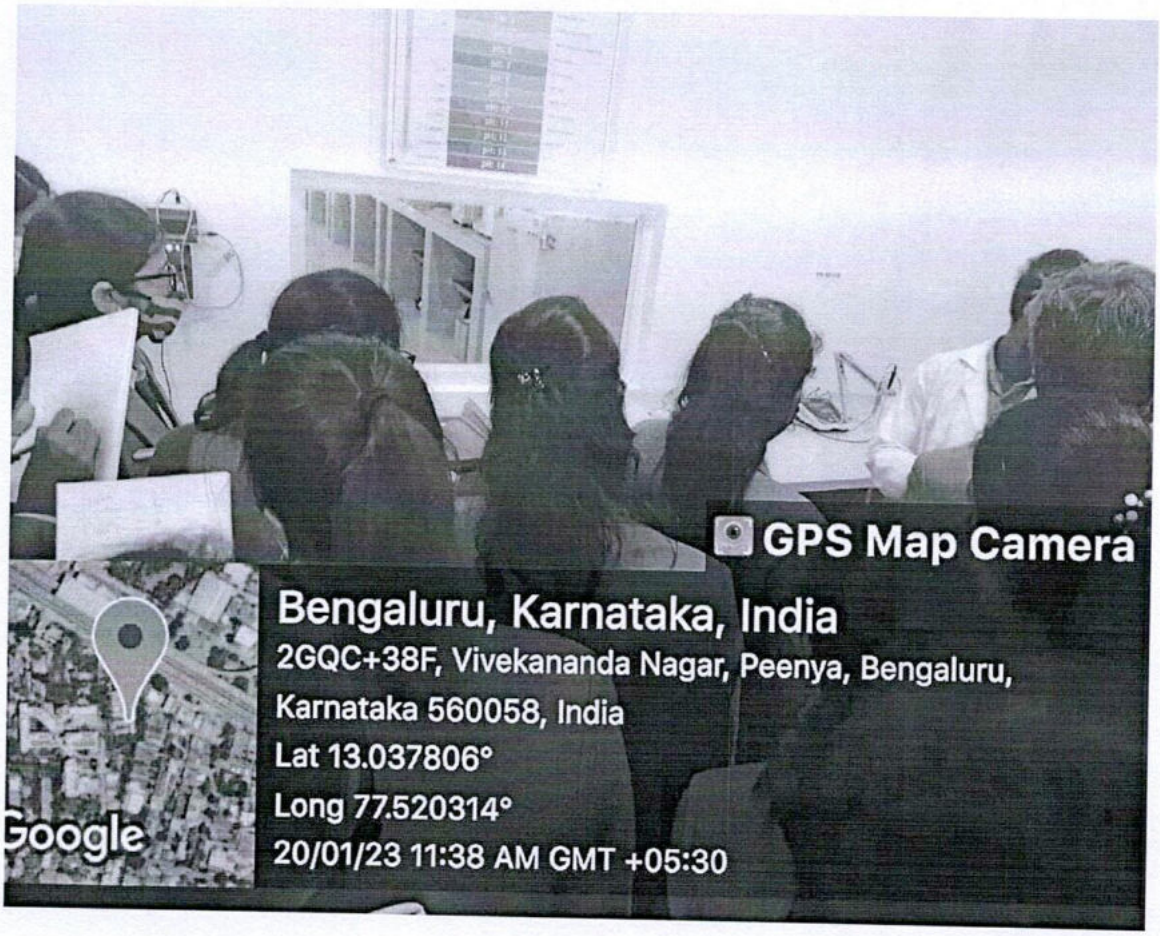


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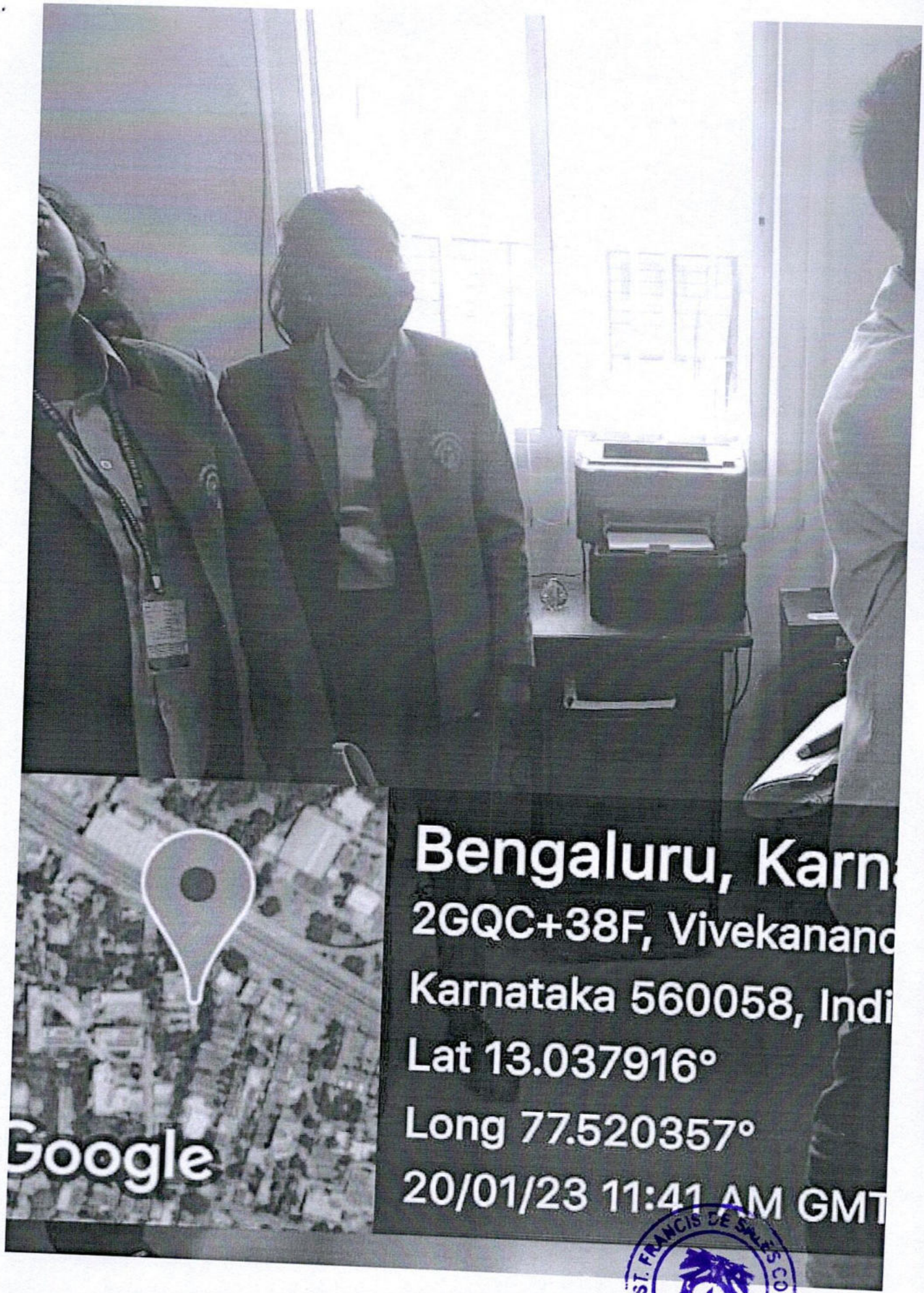
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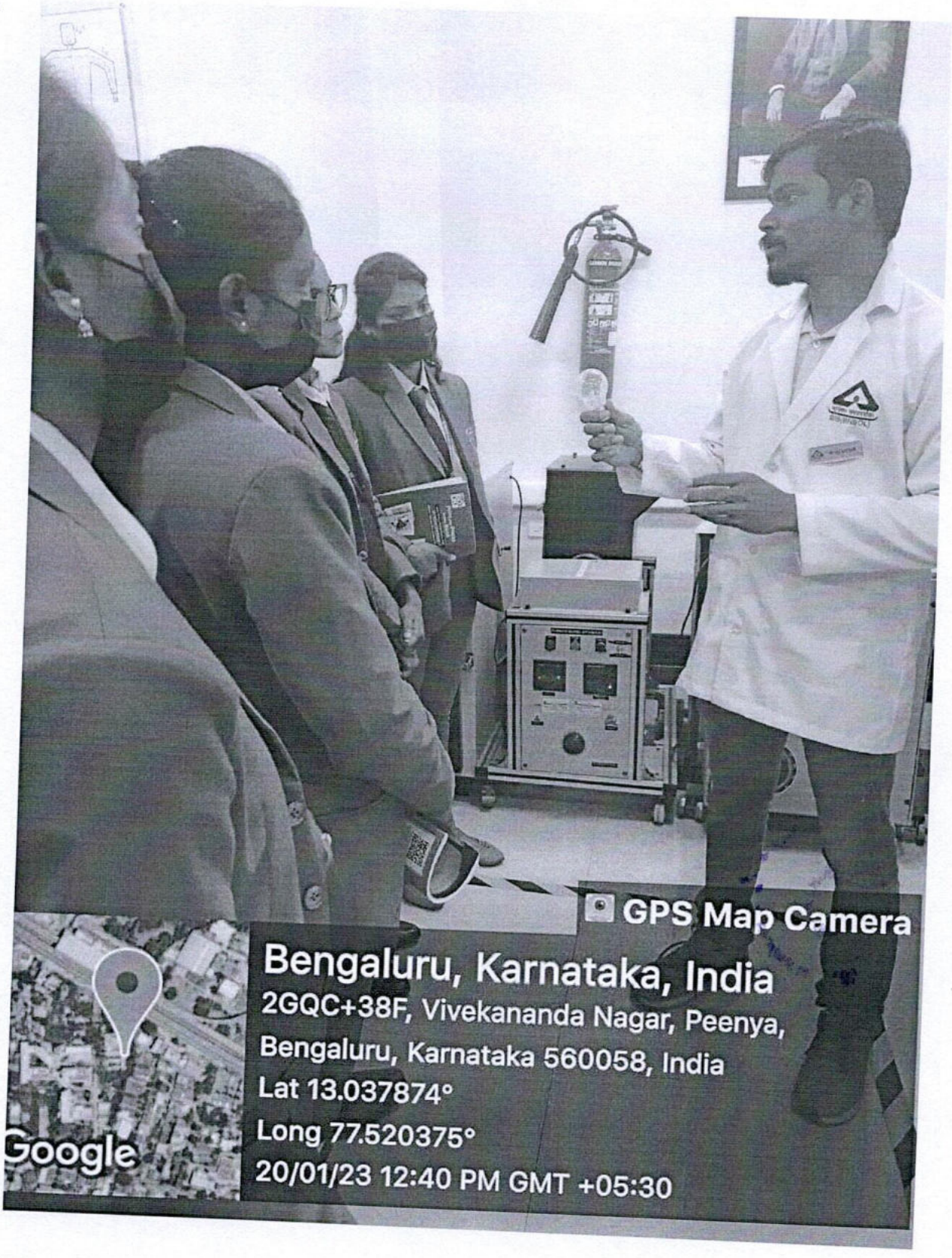

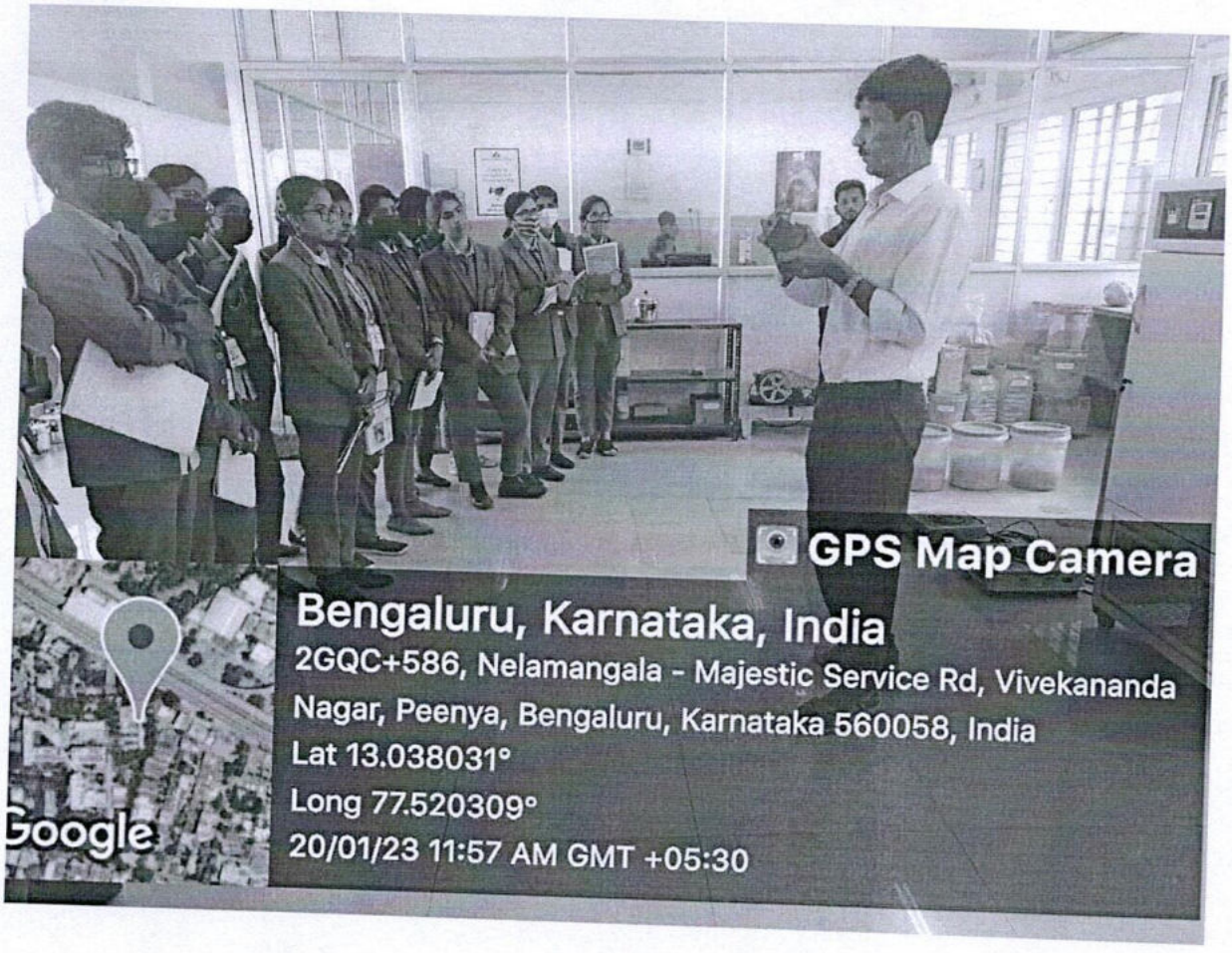


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