

**PHYSICS,  
CHEMISTRY &  
BIOLOGY  
PRACTICAL LAB  
COURSE 2024-25  
For Class 11  
[3rd & Final Phase]**



**DREAMZ**<sup>TM</sup>  
**EDUCATION CENTRE**

[Unit of DRMZEDU Services Pvt. Ltd.]

# DETAILS OF COURSE

- Experiments will be done according to the given specific dates and Time
- Students have to attend the practical experiments on TUESDAY BATCH and FRIDAY according to the given dates.
- The data sheet of each of the experiment will be given to the students
- The questions of the Viva exam will be given to the students
- All the practical classes will be organized under the guidance of Mr. Subhadip Ray.

## DATE & BATCH TIMING

**Starting from 20th DECEMBER 2024**

**10AM-11.30AM: PHYSICS**

**11.30AM-1PM: CHEMISTRY**

**1.30PM-3PM: BIOLOGY**

# PHYSICS SYLLABUS FOR CLASS 11

Exp 1. To find the length, breadth and height of a regular rectangular block by using vernier calipers and hence find its volume

Exp 2. To find the radius of a regular sphere by using vernier calipers and hence find its volume

Exp 3. To find the internal diameter and depth of a regular cylindrical object by using vernier calipers and hence find its volume

Exp 4. To find the diameter of a given wire by using screw gauge

Exp 5. To find the thickness of a given sheet by using screw gauge

Exp 6. To find the radius of curvature of a spherical convex surface by using the spherometer

Exp 7. To draw the graph between the normal reaction force and the friction force and hence to find the coefficient of friction between the block and the horizontal surface

Exp 8. To plot the 'l-T' and ' ' graph of a simple pendulum and to find the effective length of a second's pendulum

Exp 9. To find the spring constant of a helical spring by plotting a graph between the load and the extension

Exp 10. To find the coefficient of viscosity of a given fluid of known density

Exp 11. To study the relationship between the temperature of a hot body and time by plotting a cooling curve.

Exp 12. To find the young's modulus of a given wire [Demonstration only]

# CHEMISTRY SYLLABUS FOR CLASS 11

## Quantitative Estimation

- i) Using a mechanical balance/electronic balance.
- ii) Preparation of standard solution of Oxalic acid.
- iii) Determination of strength of a given solution of Sodium Hydroxide by titrating it against standard solution of Oxalic acid.
- iv) Preparation of standard solution of Sodium Carbonate.
- v) Determination of strength of a given solution of Hydrochloric acid by titrating it against standard Sodium Carbonate solution.

### Exp 1. Experiments based on pH

Determination of pH of some solutions obtained from fruit juices, solution of known and varied concentrations of acids, bases and salts using pH paper or universal indicator.

Exp 2. To Determine The Concentration and Strength of an NaOH Solution of Unknown Concentration Using a 0.1(M) Supplied HCl solution

Exp 3. To Determine The Concentration and Strength of an NaOH Solution of Unknown Concentration Using a 0.1(M) Supplied H<sub>2</sub>SO<sub>4</sub> solution

Exp 4. To Determine The Concentration and Strength of an Na<sub>2</sub>CO<sub>3</sub> Solution of Unknown Concentration Using a 0.1(M) Supplied HCl solution.

## Qualitative Analysis

Determination of one anion and one cation in a given salt

Cation: Pb<sup>2+</sup>, Cu<sup>2+</sup>, As<sup>3+</sup>, Al<sup>3+</sup>, Fe<sup>3+</sup>, Mn<sup>2+</sup>, Zn<sup>2+</sup>, Ni<sup>2+</sup>, Ca<sup>2+</sup>, Sr<sup>2+</sup>, Ba<sup>2+</sup>, Mg<sup>2+</sup>, NH<sub>4</sub><sup>+</sup>

Anions: (CO<sub>3</sub>)<sup>2-</sup>, S<sup>2-</sup>, (SO<sub>3</sub>)<sup>2-</sup>, (NO<sub>2</sub>)<sup>-</sup>, (SO<sub>4</sub>)<sup>2-</sup>, Cl<sup>-</sup>, Br<sup>-</sup>, I<sup>-</sup>, (PO<sub>4</sub>)<sup>3-</sup>, (C<sub>2</sub>O<sub>4</sub>)<sup>2-</sup>, CH<sub>3</sub>COO<sup>-</sup>, NO<sub>3</sub><sup>-</sup> (Note: Insoluble salts excluded)

Exp 5. To determine the anion and one cation in a given salt by dry test tube heating.

Exp 6. To determine the anion and one cation in a given salt by flame test.

Exp 7. To determine the anion and one cation in a given salt by Borax bead test.

Exp 8. To determine the anion and one cation in a given salt by dilute Sulphuric acid test.

Exp 9. To determine the anion and one cation in a given salt by KMnO<sub>4</sub> test.

Exp 10. To determine the anion and one cation in a given salt by concentrated Sulphuric acid test.

# BIOLOGY SYLLABUS FOR CLASS 11

Exp 1. To study and describe the given flowering plant (1. Petunia, 2. Lathyrus, 3. Asparagus, 4. Allium,) and display of whorls and anther and ovary to show number of chambers.

Exp 2. To prepare temporary stained glycerine mount of transverse section of dicot stem/monocot stem/dicot root/monocot root.

Exp 3. To demonstrate osmosis by potato osmometer.

Exp 4. To demonstrate plasmolysis and deplasmolysis in peels of Tradescantia/Rhoeo in hypotonic and hypertonic solutions using sodium chloride and potassium chloride.

Exp 5. To study the distribution of stomata on upper and lower surfaces of leaf and to calculate the stomatal index.

Exp 6. To test for glucose, sucrose, starch, proteins and fats and to show their presence in suitable plant and animal materials (e.g., wheat, potato, groundnut, milk or other suitable materials).

Exp 7. To separate and study the plant pigments by paper chromatography.

Exp 8. (a) To test the presence of urea in urine.

(b) To detect the presence of sugar (glucose) in urine.

(c) To detect the presence of albumin in urine.

(d) To detect the presence of bile salts in urine.

Exp 9. To study the parts of a compound microscope, its proper use and maintenance.

Exp 10. Study of plant specimens and identification with reasons- Bacteria, Oscillatoria, Spirogyra, Rhizopus, Mushroom/ bracket fungi, Yeast, Liver wort, Moss, Fern, Pinus, one monocotyledon, one dicotyledon and Lichens.

Exp 11. Study of characters of specimens and identification with reasons- Amoeba, Hydra, Liver fluke Ascaris, Leech, Earthworm, Prawn, Silkworm, Honey bee, Snail, Starfish, Shark, Rohu (fish), Frog, Calotes (lizard), Pigeon and Rabbit.

Exp 12. To study various stages of mitosis in animal cells (grasshopper) from permanent slide.

Exp 13. To identify and comment upon different types of inflorescence.

Exp 14. To Study and Identify Human Bones and Joints

# DATES OF 3RD & FINAL PHASE LAB COURSE

Date	Subject	Experiment
20/12/2024 [Friday]	Physics	Exp 8. To plot the 'l-T' and ' ' graph of a simple pendulum and to find the effective length of a second's pendulum
	Chemistry	Exp 7. To determine the anion and one cation in a given salt by Borax bead test.
	Biology	Exp 2: To prepare temporary stained glycerine mount of transverse section of dicot stem/monocot stem/dicot root/monocot root.
24/12/2024 [Tuesday]	Physics	Exp 9. To find the spring constant of a helical spring by plotting a graph between the load and the extension
	Chemistry	Exp 8. To determine the anion and one cation in a given salt by dilute Sulphuric acid test. Exp 9. To determine the anion and one cation in a given salt by KMnO <sub>4</sub> test.
	Biology	Exp 3: To demonstrate osmosis by potato osmometer. Exp 4: To demonstrate plasmolysis and deplasmolysis in peels of Tradescantia/Rhoeo in hypotonic and hypertonic solutions using sodium chloride and potassium chloride.
27/12/2024 [Friday]	Physics	Exp 10. To find the coefficient of viscosity of a given fluid of known density
	Chemistry	Exp 10. To determine the anion and one cation in a given salt by concentrated Sulphuric acid test.
	Biology	Exp 5: To study the distribution of stomata on upper and lower surfaces of leaf and to calculate the stomatal index. Exp 6: To test for glucose, sucrose, starch, proteins and fats and to show their presence in suitable plant and animal materials (e.g., wheat, potato, groundnut, milk or other suitable materials).
31/12/2024 [Tuesday]	Physics	Exp 11. To study the relationship between the temperature of a hot body and time by plotting a cooling curve.
	Chemistry	Reserve for Revision
	Biology	Exp 7: To separate and study the plant pigments by paper chromatography. Exp 8: (a) To test the presence of urea in urine. (b) To detect the presence of sugar (glucose) in urine.
3/1/2025 [Friday]	Physics	Exp 1. To find the length, breadth and height of a regular rectangular block by using vernier calipers and hence find its volume Exp 2. To find the radius of a regular sphere by using vernier calipers and hence find its volume Exp 3. To find the internal diameter and depth of a regular cylindrical object by using vernier calipers and hence find its volume
	Chemistry	Exp 1. Experiments based on pH: Determination of pH of some solutions obtained from fruit juices, solution of known and varied concentrations of acids, bases and salts using pH paper or universal indicator. Exp 2. To Determine The Concentration and Strength of an NaOH Solution of Unknown Concentration Using a 0.1(M) Supplied HCl solution
	Biology	Exp 9: To study the parts of a compound microscope, its proper use and maintenance. Exp 10: Study of plant specimens and identification with reasons- Bacteria, Oscillatoria, Spirogyra, Rhizopus, Mushroom/ bracket fungi, Yeast, Liver wort, Moss, Fern, Pinus, one monocotyledon, one dicotyledon and Lichens.

# DATES OF 3RD & FINAL PHASE LAB COURSE

7/1/2025 [Tuesday]	Physics	Exp 4. To find the diameter of a given wire by using screw gauge Exp 5. To find the thickness of a given sheet by using screw gauge
	Chemistry	Exp 3. To Determine The Concentration and Strength of an NaOH Solution of Unknown Concentration Using a 0.1(M) Supplied H <sub>2</sub> SO <sub>4</sub> solution Exp 4. To Determine The Concentration and Strength of an Na <sub>2</sub> CO <sub>3</sub> Solution of Unknown Concentration Using a 0.1(M) Supplied HCl solution.
	Biology	Exp 11: Study of characters of specimens and identification with reasons-Amoeba, Hydra, Liver fluke Ascaris, Leech, Earthworm, Prawn, Silkworm, Honey bee, Snail, Starfish, Shark, Rohu (fish), Frog, Calotes (lizard), Pigeon and Rabbit.
10/1/2025 [Friday]	Physics	Exp 6. To find the radius of curvature of a spherical convex surface by using the spherometer
	Chemistry	Exp 5. To determine the anion and one cation in a given salt by dry test tube heating.
	Biology	Exp 12: To study various stages of mitosis in animal cells (grasshopper) from permanent slide. Exp 1: To study and describe the given flowering plant (1. Petunia, 2. Lathyrus, 3. Asparagus, 4. Allium,) and display of whorls and anther and ovary to show number of chambers.
14/1/2025 [Tuesday]	Physics	Exp 7. To draw the graph between the normal reaction force and the friction force and hence to find the coefficient of friction between the block and the horizontal surface
	Chemistry	Exp 6. To determine the anion and one cation in a given salt by flame test.
	Biology	Exp 13: To identify and comment upon different types of inflorescence. Exp 14: To Study and Identify Human Bones and Joints

# INSTRUCTIONS

1. Students have to select the batch at the time of Admission.
2. Seats are limited in the Batch.
3. No students will be admitted if the maximum number of seats is allotted in any batch
4. No students will be allowed to attend the practical without taking the Admission in Lab Course

**Batch will be started from 20th DECEMBER  
2024**



# 💡 Dreamz Physics Practical Lab



# 💡 Dreamz Chemistry Practical Lab



# 💡 Dreamz Biology Practical Lab





# DREAMZ EDUCATION

**Barasat Study Centre:**  
1st Floor, Aarin Tower, Helabottola, Kolkata-125

**Barasat Practical Lab Campus:**  
Arabindrapally, Barasat, Kolkata-125

**Barrackpore Study Centre:**  
59, Feeder Road, Mondal para, Kolkata-120

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