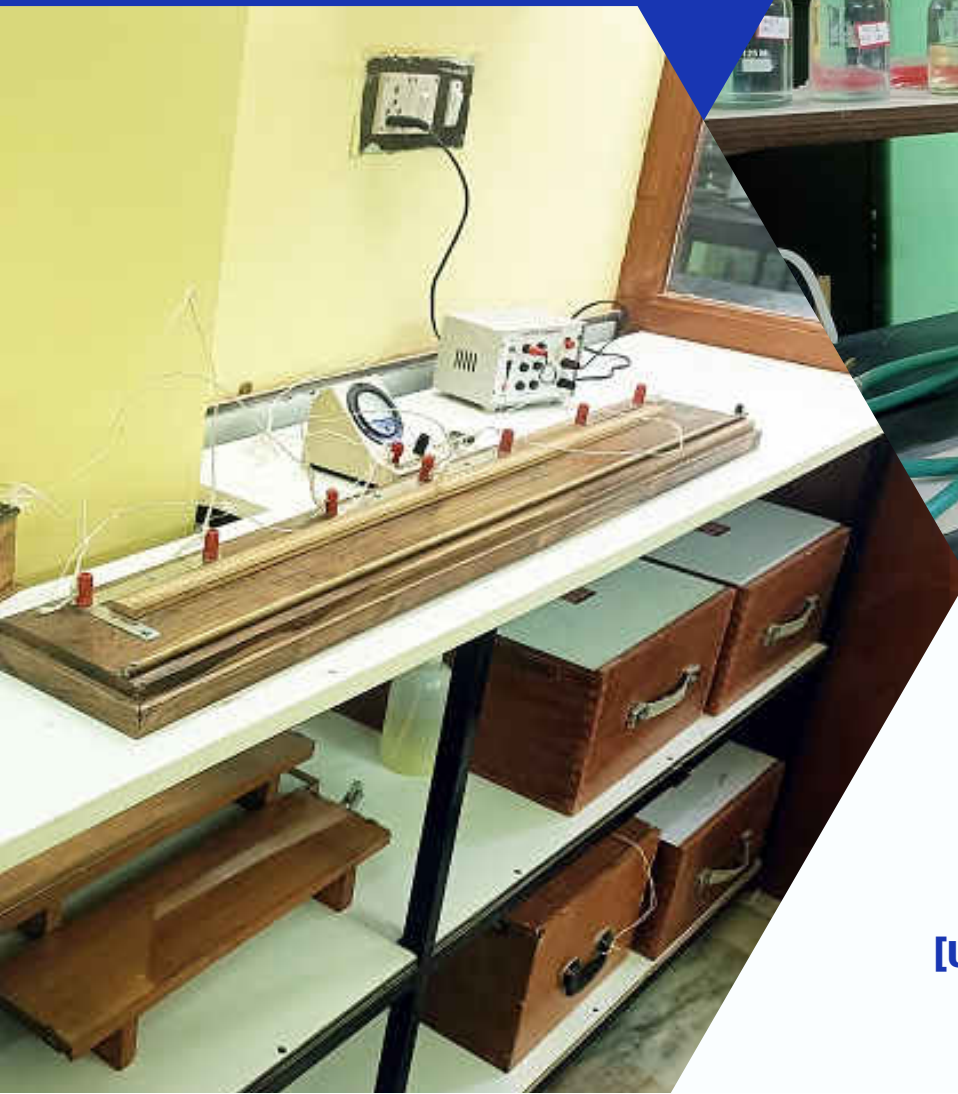# PHYSICS, CHEMISTRY & BIOLOGY PRACTICAL LAB COURSE 2023-24

For Class 11

DREAMZ
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 select any one TIME SLOT from DAY 1 batch between MONDAY and TUESDAY and any one TIME SLOT from DAY 2 batch between THURSDAY and FRIDAY
- 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 18th DECEMBER 2023

10AM-11.30AM: BIOLOGY

11.30AM-1PM: PHYSICS

1.30PM-3PM: CHEMISTRY

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Date	Subject	Topic
18/12/2023 [Monday]	Biology	To study the parts of a compound microscope, its proper use and maintenance. 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.
	Physics	To find the length, breadth and height of a regular rectangular block by using vernier calipers and hence find its volume To find the radius of a regular sphere by using vernier calipers and hence find its volume To find the internal diameter and depth of a regular cylindrical object by using vernier calipers and hence find its volume
	Chemistry	To Determine The Concentration and Strength of an NaOH Solution of Unknown Concentration Using a 0.1(M) Supplied HCl solution
19/12/2023 [Tuesday]	Biology	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.
	Physics	To find the diameter of a given wire by using screw gauge To find the thickness of a given sheet by using screw gauge
	Chemistry	To Determine The Concentration and Strength of an NaOH Solution of Unknown Concentration Using a 0.1(M) Supplied H2SO4 solution
22/12/2023 [Friday]	Biology	To study various stages of mitosis in animal cells (grasshopper) from permanent slide. 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.
	Physics	To find the radius of curvature of a spherical convex surface by using the sphero-meter
	Chemistry	To Determine The Concentration and Strength of an Na2CO3 Solution of Unknown Concentration Using a 0.1(M)Supplied HCl solution
26/12/2023 [Tuesday]	Biology	To identify and comment upon different types of inflorescence. To Study and Identify Human Bones and Joints
	Physics	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	To determine the anion and one cation in a given salt by flame test. To determine the anion and one cation in a given salt by Borax bead test.
27/12/2023 [Wednesday]	Biology	To prepare temporary stained glycerine mount of transverse section of dicot stem/monocot stem/dicot root/monocot root.
	Physics	To plot the 'l-T' and '$l-T^2$' graph of a simple pendulum and to find the effective length of a second's pendulum
	Chemistry	To determine the anion and one cation in a given salt by dilute Sulphuric acid test. To determine the anion and one cation in a given salt by KMnO4 test.

Date	Subject	Experiment
29/12/2023 [Friday]	Biology	To demonstrate osmosis by potato osmometer. To demonstrate plasmolysis and deplasmolysis in peels of Tradescantia/Rhoeo in hypotonic and hypertonic solutions using sodium chloride and potassium chloride.
	Physics	To find the spring constant of a helical spring by plotting a graph between the load and the extension
	Chemistry	To determine the anion and one cation in a given salt by concentrated Sulphuric acid test.
2/1/2024 [Tuesday]	Biology	To study the distribution of stomata on upper and lower surfaces of leaf and to calculate the stomatal index. 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).
	Physics	To find the coefficient of viscosity of a given fluid of known density
	Chemistry	To determine the anion and one cation in a given salt by dry test tube heating. Some more Salt analysis
5/1/2024 [Friday]	Biology	To separate and study the plant pigments by paper chromatography. To test the presence of urea in urine. To detect the presence of sugar (glucose) in urine.
	Physics	To study the relationship between the temperature of a hot body and time by plotting a cooling curve
	Chemistry	Reserve Day for revision

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 sphero-meter

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 TheConcentration 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_2SO_4 solution

Exp 4. To Determine The Concentration andStrength of an Na_2CO_3 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^{2+}, Cu^{2+} As^{3+}, $A\ell^{3+}$, Fe^{3+}, Mn^{2+}, Zn^{2+}, Ni^{2+}, Ca^{2+}, Sr^{2+}, Ba^{2+}, Mg^{2+}, NH_4^+

Anions: $(CO_3)^{2-}$, S^{2-}, $(SO_3)^{2-}$, $(NO_2)^-$, $(SO_4)^{2-}$, $C\ell^-$, Br^-, I^-, $(PO_4)^{3-}$, $(C_2O_4)^{2-}$, CH_3COO^-, NO_3^- (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 $KMnO_4$ test.

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

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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, groundnunt, 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

💡 Dreamz Physics Practical Lab

💡 Dreamz Chemistry Practical Lab

💡 Dreamz Biology Practical Lab

COURSE FEES
[ONE TIME PAYMENT]

FOR DREAMZ STUDENTS
For 1 Subject: Rs. 2500
For 2 Subjects: Rs. 5000
For 3 Subjects: Rs. 7500

FOR OUTER STUDENTS
For 1 Subject: Rs. 3000
For 2 Subjects: Rs. 6000
For 3 Subjects: Rs. 9000

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

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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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