

**PHYSICS,
CHEMISTRY &
BIOLOGY
PRACTICAL LAB
COURSE 2024-25**

**For Class 12
[3rd & Final Phase]**



DREAMZTM
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

1st BATCH

10AM-11.30AM: BIOLOGY

11.30AM-1PM: PHYSICS

1.30PM-3PM: CHEMISTRY

OR

2nd BATCH [SUITABLE FOR THE STUDENTS WITH BIOLOGY]

10AM-11.30AM: CHEMISTRY

11.30AM-1PM: BIOLOGY

1.30PM-3PM: PHYSICS

PHYSICS SYLLABUS FOR CLASS 12

Exp 1.To establish current-voltage relationship (Ohm's law) for a metallic conductor and find its resistance of the wire per unit length.

Exp 2.To find the specific resistance of a given wire by using meter bridge

Exp 3.Verify the combination of resistance in series by using meter bridge

Exp 4.Verify the combination of resistance in parallel by using meter bridge

Exp 5.To find the resistance of a galvanometer and its figure of merit by the half deflection method

Exp 6.To convert a galvanometer of known resistance and known figure of merit in to a voltmeter

Exp 7.To convert a galvanometer of known resistance and known figure of merit in to a Ammeter

Exp 8.To find the values of 'v' for different values of 'u' for a concave mirror and hence to find its focal length

Exp 9.To find the values of 'v' for different values of 'u' for a Convex Lens and hence to find its focal length by plotting the graph between 'u' and 'v'

Exp 10.To find the refractive index of a glass slab by using travelling microscope

Exp 11.To find the refractive index of a liquid by using convex lens and plane mirror

Exp 12.To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and the angle of deviation.

Exp 13.To draw the V-I characteristic graph of the p-n junction diode in forward and reverse bias and hence to find the resistance in forward and reverse bias

CHEMISTRY SYLLABUS FOR CLASS 12

Determination of concentration/ molarity of KMnO_4 solution by titrating it against a standard solution of: i) Oxalic acid

ii) Ferrous Ammonium Sulphate

Exp 1: To Determine the Concentration and Strength of KMnO_4 Solution Using (M/20) Standard Mohr's Salt Solution.

Qualitative analysis

Determination of one cation and one anion in a given salt.

Cation - Pb^{2+} , Cu^{2+} , Al^{3+} , Fe^{3+} , Mn^{2+} , Zn^{2+} , Co^{2+} , Ni^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} , Mg^{2+} , $[\text{NH}_4]^+$

Anions - $[\text{CO}_3]^{2-}$, S^{2-} , $[\text{SO}_3]^{2-}$, $[\text{SO}_4]^{2-}$, $[\text{NO}_2]^-$, Cl^- , Br^- , I^- , $[\text{PO}_4]^{3-}$, $[\text{C}_2\text{O}_4]^{2-}$, CH_3COO^-

Exp 2: To confirm the basic (cation) radicals in a given sample

Exp 3: To confirm the acidic (anion) radicals in a given sample.

Exp 4: To separate the basic (cation) and acidic (anion) radicals [Group Separation] for a given sample

Exp 5: To perform the salt analysis of NH_4Cl

Exp 6: To perform the salt analysis of Pb_2NO_3

Exp 7: To perform the salt analysis of FeSO_4

Exp 8: To perform the salt analysis of ZnSO_4

Exp 9: To perform the salt analysis of $(\text{CH}_3\text{COO})_2\text{Ca}$

Exp 10: To perform the salt analysis of BaCl_2

Exp 11: To perform the salt analysis of $\text{Sr}(\text{NO}_3)_2$

Tests for the functional groups present in organic compounds:

Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (Primary) groups.

Exp 12a: Identification of organic compound present in given organic compound

Exp 12b: Identification of unsaturation in a given sample of organic compound.

Exp 12c: Identification of alcoholic group in a given sample of organic compound.

Exp 12d: Identification of ketone and aldehyde groups in an given sample of organic compound.

Exp 12e: Identification of phenol in an given sample of organic compound.

Exp 12f: Identification of amine group in an given sample of organic compound.

Exp 12g: Identification of carboxylic acid group in an given sample of organic compound.

BIOLOGY SYLLABUS FOR CLASS 12

- Exp 1.To study the pollen germination on a slide
- Exp 2.To study the moisture content of different soils
- Exp 2.To study pH of different types of soil
- Exp 4.To study the water holding capacity of garden soil and roadside soil
- Exp 5.Collect water from two different water bodies around you and study them for pH
- Exp 6.To study different water samples for the presence of living organisms
- Exp 7.To study population density and percentage frequency of different plant species of a given area
- Exp 8.To prepare temporary acetocarmine stained mount of onion root tip to study various stages of mitosis
- Exp 9.To study the action of salivary amylase on starch
- Exp 10.To study the effect of different temperatures on the activity of salivary amylase on starch
- Exp 11.To study the effect of different pH on the activity of salivary amylase on starch
- Exp 12.To isolate DNA from available plant material such as spinach leaves, green pea seeds, papaya etc.
- Exp 13.To study the flowers adapted to pollination by different agencies • (wind, insect and birds)
- Exp 14.To study the pollen germination and growth of pollen tube in a pollinated pistil (in Portulaca/grass or any other suitable flower)
- Exp 15.To study and identify the stages of gamete development in mouse (mammal) i.e., T.S. of testis and L.S. of ovary through permanent slide
- Exp 16.To study meiosis in grasshopper testis through permanent slide
- Exp 17.To study T.S. of blastula through permanent slide
- Exp 18.To study Mendelian inheritance using seeds of different colour/size of any plant
- Exp 19.To study the prepared pedigree charts of genetic traits such as rolling of tongue, blood groups, widow's peak, colour blindness etc. .
- Exp 20.To comment on the exercises of hybridization (emasculation, tagging and bagging) through models/charts
- Exp 21.Study of Common Disease -Causing Organisms
- Exp 22.Study of two plants and two animals found in xerophytic conditions and comment upon their adaptations/morphological features
- Exp 23.Study of two plants and two animals found in aquatic conditions and comment upon their adaptations/morphological features

DATES OF 3RD & FINAL PHASE LAB COURSE

Date	Subject	Experiment
20/12/2024 [Friday]	Physics	Exp 9. To find the values of 'v' for different values of 'u' for a Convex Lens and hence to find its focal length by plotting the graph between 'u' and 'v'
	Chemistry	Exp 6: To perform the salt analysis of Pb_2NO_3 Exp 7: To perform the salt analysis of $FeSO_4$ Exp 8: To perform the salt analysis of $ZnSO_4$
	Biology	Exp 19: To study the prepared pedigree charts of genetic traits. Exp 12: To study DNA isolation from a given plant material.
24/12/2024 [Tuesday]	Physics	Exp 10. To find the refractive index of a glass slab by using travelling microscope
	Chemistry	Exp 9: To perform the salt analysis of $(CH_3COO)_2Ca$ Exp 10: To perform the salt analysis of $BaCl_2$ Exp 11: To perform the salt analysis of $Sr(NO_3)_2$
	Biology	Exp 8: To prepare temporary acetocarmine stained mount of onion root tip to study various stages of mitosis. Exp 16: To study meiosis in grasshopper testes through permanent slides.
27/12/2024 [Friday]	Physics	Exp 11. To find the refractive index of a liquid by using convex lens and plane mirror
	Chemistry	Exp 12a: Identification of organic compound present in given organic compound Exp 12b: Identification of unsaturation in a given sample of organic compound. Exp 12c: Identification of alcoholic group in a given sample of organic compound. Exp 12d: Identification of ketone and aldehyde groups in an given sample of organic compound.
	Biology	Exp 15: To study and identify the stages of gamete development in mouse, i.e., T.S. of Testis & L.S. of Ovary through permanent slide. Exp 17: To study T.S of blastula through permanent slide Exp 21: Study of common disease causing organisms.
31/12/2024 [Tuesday]	Physics	Exp 13. To draw the V-I characteristic graph of the p-n junction diode in forward and reverse bias and hence to find the resistance in forward and reverse bias
	Chemistry	Exp 12e: Identification of phenol in an given sample of organic compound. Exp 12f: Identification of amine group in an given sample of organic compound. Exp 12g: Identification of carboxylic acid group in an given sample of organic compound.
	Biology	Exp 1: To study pollen germination on a slide. Exp 14: To study the pollen germination and growth of pollen tube in a pollinated pistil. Exp 5 & 6: To collect water samples and study for the presence of living organisms and pH.
3/1/2025 [Friday]	Physics	Exp 1. To establish current-voltage relationship (Ohm's law) for a metallic conductor and find its resistance of the wire per unit length.
	Chemistry	Exp 1: To Determine the Concentration and Strength of $KMnO_4$ Solution Using (M/20) Standard Mohr's Salt Solution.
	Biology	Exp 9: To study the action of salivary amylase on starch Exp 10: To study the effect of different temperature on the activity of salivary amylase on starch Exp 11: To study the effect of different pH on the activity of salivary amylase on starch.

DATES OF 3RD & FINAL PHASE LAB COURSE

7/1/2025 [Tuesday]	Physics	Exp 2. To find the specific resistance of a given wire by using meter bridge Exp 3. Verify the combination of resistance in series by using meter bridge Exp 4. Verify the combination of resistance in parallel by using meter bridge
	Chemistry	Exp 2: To confirm the basic (cation) radicals in a given sample
	Biology	Exp 13: To study flowers adapted to pollination by different agencies. Exp 22: Study of two plants and animals found in xerophytic conditions and comment upon their adaptations/ morphological features. Exp 23: Study of two plants and animals found in aquatic conditions and comment upon their adaptations/ morphological features.
10/1/2025 [Friday]	Physics	Exp 5. To find the resistance of a galvanometer and its figure of merit by the half deflection method Exp 6. To convert a galvanometer of known resistance and known figure of merit in to a voltmeter
	Chemistry	Exp 3: To confirm the acidic (anion) radicals in a given sample.
	Biology	Exp 2: To study moisture content of different soils. Exp 3: To study pH of different types of soil. Exp 4: To study the water holding capacity of garden soil and road side soil.
14/1/2025 [Tuesday]	Physics	Exp 6. To convert a galvanometer of known resistance and known figure of merit in to a voltmeter Exp 7. To convert a galvanometer of known resistance and known figure of merit in to a Ammeter
	Chemistry	Exp 4: To separate the basic (cation) and acidic (anion) radicals [Group Separation] for a given sample Exp 5: To perform the salt analysis of NH_4Cl
	Biology	Exp 7: To study population density and percentage frequency of different plant species of a given area. Exp 18: To study Mendelian inheritance using seeds of different colour/ size of any plant. Exp 20: To comment on the exercises of hybridization (Emasculation, tagging & bagging) through charts.

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

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