

# Indira Gandhi National College, Ladwa(Dhanora)

## LESSON PLAN FOR ODD SEMESTER (2026-27)

Name of the teacher : Dr Preet Rachna

Subject: Botany(CC-1)

Paper : Cell biology, diversity of Microbes, Algae and Fungi

Class: B.Sc.-1 st Semester

| WEEK    | DATE                   | TOPICS                                                                        |
|---------|------------------------|-------------------------------------------------------------------------------|
| 1 week  | 06 Aug.- 08 Aug., 2026 | Ultrastr. & functions of plant cell, Nucleus, Mitochond. Plastids, Ribosomes. |
| 2 week  | 13 Aug.-15Aug.         | Ultrastr & func. of E.R., Golgi App., Lysosomes                               |
| 3 week  | 20 Aug.-22 Aug.        | Str. & func. of cell wall & P. memb., Fluid Mosaic Model                      |
| 4 week  | 27Aug.- 29 Aug.        | Mitosis and Meiosis.                                                          |
| 5 week  | 03 Sep.- 05 Sep.       | Bacteria: str., nut., rep. and eco. imp.                                      |
| 6 week  | 10Sep.-12 Sep.         | Virus account, str. of TMV & Bacteriophage, Eco. imp. Virus                   |
| 7 week  | 17Sep.-19 Sep.         | General account & Eco. imp. of Cyanobacteria                                  |
| 8 week  | 24Sep.-26Sep.          | Algae characters, classification Smith 1955, division level                   |
| 9 week  | 01Oct.-03Oct.          | Life cycle of Volvox, Vaucheria excluding dev.                                |
| 10 week | 08Oct.-10Oct.          | Life cycle of Ectocarpus excluding dev.                                       |
| 11 week | 15 Oct.-17 Oct.        | Economic imp. of Algae                                                        |
| 12 week | 22Oct.- 24 Oct.        | Phytoplankton, ecological & economic imp.                                     |
| 13 week | 29Oct.-31Oct.          | Fungi, characters, classification Ainsworth & Sussman, 1972                   |
| 14 week | 05Nov. -07 Nov         | Life history of Phthorhiza, Penicillium                                       |
| 15 week | 12Nov.-14Nov.          | Life history of Agaricus, Colletotrichum                                      |
| 16 week | 19Nov.-21Nov.          | Economic importance of Fungi                                                  |
| 17 week | 26 Nov.-28Nov.         | General account of lichens, types                                             |
| 18 week | 03Dec.-04 Dec.         | Ecological and economic imp. of lichens                                       |
|         | 01 Nov. - 09 Nov.      | Vacations (Diwali)                                                            |
|         | 05 Dec. onwards        | Exams                                                                         |

# Indira Gandhi National College, Ladwa(Dhanora)

## LESSON PLAN FOR Even SEMESTER (2026-27)

Name of the teacher : Dr Preet Rachna

Subject: Botany (CC-2)

Paper : Diversity of Embryophytes and Plant Anatomy

Class: B.Sc.-2 nd Semester

| WEEK    | DATE                  | TOPICS                                                                |
|---------|-----------------------|-----------------------------------------------------------------------|
| 1 week  | 07 Jan.-09 Jan., 2027 | Bryophytes character, classification, Smith 1935 till class           |
| 2 week  | 14 Jan.- 16 Jan.      | St. & rep. of Marchantia - exclude development                        |
| 3 week  | 21 Jan.-23 Jan.       | St. & rep. of Funaria - exclude development, importance               |
| 4 week  | 28 Jan.-30 Jan.       | Pteridophytes character, classification A.R. Smith 2006.              |
| 5 week  | 04 Feb.-06 Feb.       | St. & rep. of Selaginella - exclude development                       |
| 6 week  | 11Feb-13Feb.          | St. & rep. of Pteris - exclude development.                           |
| 7 week  | 18Feb.-20Feb          | Heterospory, seed habit, Stear system, Economic imp. of Pteridophytes |
| 8 week  | 25Feb.-27Feb.         | Gymnosperm character, classification Smith 1955 till class            |
| 9 week  | 04Mar . -06Mar.       | Morphology, Anatomy & rep. of Cycas, Economic imp.                    |
| 10 week | 11Mar-13Mar           | Morphology, Anatomy & rep. of Pinus.                                  |
| 11 week | 18Mar-19Mar.          | Herbs, Shrubs, Trees, climbers, Annuals, Biennials, Perennials        |
| 12week  | 01April-03April       | Root character, function, types, modify, functions                    |
| 13 week | 08April-10April       | Stem character, function, modifications                               |
| 14 week | 15April-17April       | Leaf, Phyllotaxy, venation, modification.                             |
| 15week  | 22April.-24 April.    | Tissues, xylem, phloem, apical meristem.                              |
| 16week  | 29April,30April-1May  | Stem st., Root st., Leaf st., Vascular bundles Wood types             |
| 17 week | 06May-07May 2027      | Sec. growth in stems & roots.                                         |
| 20      | March - 28 March      | Vacations (Holi)                                                      |
| 10      | May onwards-          | Examination                                                           |

Indira Gandhi National College, Ladwa(Dhanora)

# Indira Gandhi National College, Ladwa(Dhanora)

## LESSON PLAN FOR ODD SEMESTER (2026-27)

Name of the teacher : Dr Preet Rachna

Subject: Botany(CC-3)

Paper : Plant Physiology

Class: B.Sc.-3 rd Semester

| WEEK             | DATE                    | TOPICS                                                  |
|------------------|-------------------------|---------------------------------------------------------|
| 1 week           | 03Aug.-05 Aug., 2026    | Plant water relation : Absorption                       |
| 2 week           | 10Aug.-12Aug.           | Water Potential and transpiration                       |
| 3 week           | 17Aug.-19 Aug.          | Role of micro & macro nutrients                         |
| 4 week           | 24Aug.- 26 Aug.         | Photosynthesis                                          |
| 5 week           | 31 Aug.,01 Sep.-02 Sep. | Respiration.                                            |
| 6 week           | 07Sep.-09 Sep.          | Biosyn., mechanism action, uses - auxin, gibberellin.   |
| 7 week           | 14Sep.-16 Sep.          | Biosyn., mec. of action, use - cytokinin, ABA, ethylene |
| 8 week           | 21Sep.-23Sep.           | Lipid metabolism                                        |
| 9 week           | 28Sep.-30Sep.           | Nitrogen metabolism                                     |
| 10 week          | 05Oct.-07Oct.           | St., func and action of phytochromes                    |
| 11 week          | 12 Oct.-14 Oct.         | Stomatal movement.                                      |
| 12 week          | 19Oct.- 21 Oct.         | Photoperiodism & Biological clock                       |
| 13 week          | 26Oct.-28Oct.           | Mechanism of flowering.                                 |
| 14 week          | 02Nov. -04 Nov          | Concept. of plant growth.                               |
| 15 week          | 09Nov.-11Nov.           | Factors affecting germination of seeds                  |
| 16 week          | 16Nov.-18Nov.           | Factors affecting dormancy of seeds                     |
| 17 week          | 23 Nov.-25Nov.          | Physiology & biochem. of senescence                     |
| 18 week          | 30Nov.,01 Dec.-02 Dec.  | Physiology & biochem. of abscission                     |
| 01 Nov — 09 Nov. |                         | Vacations (Diwali)                                      |
| 05 Dec. onwards  |                         | Exams                                                   |

# Indira Gandhi National College, Ladwa(Dhanora)

## LESSON PLAN FOR Even SEMESTER (2026-27)

Name of the teacher : Dr Preet Rachna

Subject: Botany(CC-4)

Paper : Cytology and Genetics

Class: B.Sc.-4th Semester

| WEEK                                  | DATE               | TOPICS                                                                    |
|---------------------------------------|--------------------|---------------------------------------------------------------------------|
| 1 week                                | 11Jan.-13 Jan 2027 | Cell Theory, Prok. & euk. Cells & Components                              |
| 2 week                                | 18Jan-20Jan.       | st. & func. of cell wall, Plasma memb.                                    |
| 3 week                                | 25Jan.-27 Jan.     | Nucleus, Nuc. Envelope, Golgi body, Ribosome, E.R.                        |
| 4 week                                | 01Feb.- 03 Feb.    | Chloroplast, Mitochondria, Lysosome, Peroxisome, Vacuole                  |
| 5 week                                | 08 Feb.-10 Feb.    | Cell division- Mitosis & Meiosis                                          |
| 6 week                                | 15Feb.-17Feb.      | Chromosome st., centromere & Telomere, Lamp & polytene.                   |
| 7 week                                | 22 Feb.-24Feb.     | DNA: structure, types, replication                                        |
| 8 week                                | 01Mar- 03Mar.      | RNA: Structure & types                                                    |
| 9 week                                | 08Mar-10Mar        | Genetic code                                                              |
| 10 week                               | 15Mar.-17Mar.      | Mendel's laws of Inheritance, Lethal Genes                                |
| 11week                                | 22Mar- 24Mar.      | Codominance, incom. dom., Gene interactions                               |
| 12week                                | 29 Mar.-31 Mar.    | Multiple allelism, Pleiotropism, Chi-sq. test. Pedigree                   |
| 13week                                | 05April.-07April.  | Cytoplasmic Inh., Kappa in Paramecium, Leaf variegation<br>Shall continue |
| 14week                                | 12April-14April    | Complete / incomplete linkage, recomb. freq., Cross over                  |
| 15week                                | 19April-21April    | deletion, duplication, translocation, inversion.                          |
| 16week                                | 26April-28April    | Aneuploidy, polyploidy, sex chr. & Sex determine                          |
| 17week                                | 03May- 05May 2027  | Types of mutations, mutagens                                              |
| 20 March - 28 March- Vacations (Holi) |                    |                                                                           |
| 10 May onwards- Examination           |                    |                                                                           |

# Indira Gandhi National College, Ladwa(Dhanora)

## LESSON PLAN FOR ODD SEMESTER (2026-27)

Name of the teacher : Dr Preet Rachna

Subject: Botany(CC-5)

Paper : Economic Botany and Plant Biotechnology

Class: B.Sc.-5 th Semester

| WEEK    | DATE                     | TOPICS                                                                                            |
|---------|--------------------------|---------------------------------------------------------------------------------------------------|
| 1 week  | 03Aug.-05 Aug., 2026     | Introd. of Cereals & Millets                                                                      |
| 2 week  | 10Aug.-12Aug.            | Origin, dist., botany, cultiv. and uses- Rice, Wheat, Maize                                       |
| 3 week  | 17Aug.-19 Aug.           | Origin, dist., botany, cultiv. and uses- Gram, Arhar, Pea                                         |
| 4 week  | 24Aug.- 26 Aug.          | Origin, dist., botany, cultiv. and uses- Potato, Tomato, Onion                                    |
| 5 week  | 31 Aug., 01 Sep.-02 Sep. | Origin, dist., botany, culti, Processing, uses- Cotton, Jute, Flax.                               |
| 6 week  | 07Sep.-09 Sep.           | Origin, dist., botany, culti, uses- Groundnut, Mustard, Coconut.                                  |
| 7 week  | 14Sep.-16 Sep.           | Morphology of plant part, Cultiv. & uses- Pepper, Coriander, Ginger, turmeric, clove.             |
| 8 week  | 21Sep.-23Sep.            | Cultivation, botany, imp. of Cinchona, Rauwolfia, Atropa, opium, Cannabis, Gooseberry, Withania   |
| 9 week  | 28Sep.-30Sep.            | Botany & Processing of Tea, Coffee, Hevea                                                         |
| 10 week | 05Oct.-07Oct.            | Botany, Cultiv. & harvest of Sugarcane & Timber plants                                            |
| 11 week | 12 Oct.-14 Oct.          | Totipotency, Cryopreservation seed, embryo, callus, Suspension organ, cell and protoplast culture |
| 12 week | 19Oct.- 21 Oct.          | Microprop, Somatic embryogenesis & Synthetic seed account                                         |
| 13 week | 26Oct.-28Oct.            | In vitro haploids, Anther, Microspore culture, gynogenic haploids, gynogenesis factors            |
| 14 week | 02Nov. -04 Nov           | Somatic hybrid, cybrid, somaclonal variations                                                     |
| 15 week | 09Nov.-11Nov.            | Direct DNA transfer, microproj bomb, electroporation, Liposome mediated, Calcium phosphate med.   |
| 16 week | 16Nov.-18Nov.            | RE types & role, cloning vectors - Ti-Plasmid, BAC, Cosmid, YAC                                   |
| 17 week | 23 Nov.-25Nov.           | Agrobac. tumefaciens & A. rhizogene Plant transform                                               |
| 18 week | 30Nov., 01 Dec.-02 Dec.  | Strategies for gene transfer, Binary & co-integrate vector                                        |
|         | 01 Nov. - 09 Nov.        | Vacations (Diwali)                                                                                |
|         | 05 Dec. onwards          | Exams                                                                                             |

## LESSON PLAN FOR Even SEMESTER (2026-27)

Name of the teacher : Dr Preet Rachna

Subject: Botany(CC-6)

Paper : Plant Anatomy and Embryology

Class: B.Sc.-6 th Semester

| WEEK    | DATE                  | TOPICS                                                                                    |
|---------|-----------------------|-------------------------------------------------------------------------------------------|
| 1 week  | 11Jan.-13 Jan 2027    | Plant Anatomy, mer. & per. tissue                                                         |
| 2 week  | 18Jan-20Jan.          | Complex tissue, secretory, mechanical tissue & distribution                               |
| 3 week  | 25Jan.-27 Jan.        | Tissue system (Epidermal, ground, vascular)                                               |
| 4 week  | 01Feb.- 03 Feb.       | Cambium, Vascular bundles, nodal/internodal vas. skeleton                                 |
| 5 week  | 08 Feb-10 Feb.        | SAM Anatomy, shoot apex, monocot/dicot stem Anatomy                                       |
| 6 week  | 15Feb.-17Feb.         | Second growth, anomalous growth- <i>Dracaena</i> , <i>Boerhaavia</i> , <i>Mirabilis</i> . |
| 7 week  | 22 Feb.-24Feb.        | Phyllotaxy, dicot/monocot leaf anatomy, Kranz anatomy                                     |
| 8 week  | 01Mar-3Mar.           | RAM anatomy, Monocot/dicot roots, quiescent centre                                        |
| 9 week  | 08Mar-10Mar           | Sec. growth in dicot root, St. of resp., storage, epiphytic roots                         |
| 10 week | 15Mar.-17Mar.         | Plant embryology, flower & floral organs,                                                 |
| 11 week | 22 Mar.-24 Mar.       | Microsporangesis, pollen grain structure, Palynology                                      |
| 12week  | 29Mar.-31Mar          | Microsporangium & dehiscence Mechanism.                                                   |
| 13week  | 05April-07April       | Pollen-pistil interaction, self-incompatibility                                           |
| 14week  | 12April-14April       | Pollination types, agencies, pollen germination & development                             |
| 15week  | 19April-21April       | St. of megasporangium, megasporogenesis & megagametogenesis, Female gametophyte           |
| 16week  | 26April-28April       | Double fert., endosperm, embryogenesis-dicot/monocot, polyembryony, apomixis              |
| 17 week | 03April-05April, 2027 | Dicot & monocot seed, fruit dispersal and Seed dispersal.                                 |
| 20      | March- 28 March-      | Vacations (Holi)                                                                          |
| 10      | May onwards-          | Examination.                                                                              |