

SARDAR PATEL UNIVERSITY
Programme: MSC (Botany)
Semester: III
Syllabus with effect from: June 2011

Paper Code: PS03CBOT01	Total Credits: 4
Title Of Paper: Plant Development & Reproduction	

Unit	Description in detail	Weightage (%)
1	Introduction to growth and development of higher plants: The major groups of plants; The structure of higher plants – The cell, meristems; simple tissue; complex tissues and tissue systems – Protective systems, Absorbing systems, Supporting systems, Photosynthetic systems, Storage systems, Transporting systems; Secretory and Excretory systems, Aerating systems; Movement systems of positional perception, Intra-organismal communication systems. Concepts of plant growth and development from an organismal perspective.	25 %
2	Seed to seedling: Seed germination, seedling growth. Seedling to adult plant Primary vegetative body of the plant: Growth and Differentiation of the shoot, leaf and root; Secondary body of the plant: The vascular cambium, secondary xylem, secondary phloem, periderm.	25 %
3	Reproduction : Floral evocation and development of the floral meristem, formation of floral organs, Microsporogenesis and formation of the male gametophyte, Megasporogenesis and formation of the embryo sac, Pollen-pistill interaction and fertilization.	25 %
4	Seed and Fruit formation: Endosperm development and embryogenesis, Fruit growth and ripening, Dormancy of seeds and buds. Alternative Development strategies: Embryonic development of somatic cells and pollen grains, Abnormal Growth.	25 %

Basic Text & Reference Books:

- Carlquist, S. Comparative Wood Anatomy, Springer – Verlag, Berlin.
- Cutter, D. F., Applied Plant Anatomy, Logman, London.
- Cutter, E. G. Plant Anatomy: Experiment and Interpretation : Part 2 – Organs. Edward Arnold, London.
- Cutter, E. G., Plant Anatomy: Part – 1 Cells and Tissues, 2nd Edition, Edward Arnold, London.
- Eames, A. J. and Mac Daniels, L. H. An Introduction to Plant Anatomy, 2nd Edition, McGraw – Hill, New York.
- Fahn, A., Plant Anatomy, 4th Edition, Butterworth, Heinemann Ltd.
- Fosket, D. E., Plant Growth and Development : A Molecular Approach. Academic press, San Diego.
- Kozolowski, T. T., Growth and Development of Trees. Vols. I and II. Academic. Press, New York.
- Lyndon, R. F., Plant Development: The cellular basis. Unwin Hyman, London.
- Maheswari, P. An Introduction to the Embryology of Angiosperms. McGraw-Hill Book Co., New York.
- Mauseth, J. D. Plant Anatomy, The Benjamin/Cummings Publishing Co. California.
- Metcalfe, C. R. and Chalk. L. Anatomy of the Dicotyledons. 2nd Edition Vol – III, Clarendon Press, Oxford.



- Metcalfe, C. R. and Chalk. L. Anatomy of the Dicotyledos, Vols.I and II, Clarendon Press, Oxford.
- Murphy, T. M. and Thompson, W. F. Molecular Plant Development, Prentice Hall, New Jersey.
- Peter, W., Jeske, H., Jurgens, G. ,Kloppstech, K. and Link, G. Molecular Plant Development: from gene to plant. Oxford University Press, Oxford, NY.
- Raghavan, V. An Introduction to the Embryology of Angiosperms. McGraw Hill Book Co., NY.
- Raghavan, V. Developmental Biology of Flowering Plants. Springer – Verlag, NY.
- Romberger, J. A., Hejnowicz, Z. and Hill, J. F. Plant Structure : Function and Development : A Treatise on Anatomy and Vegetative Development, with special reference to woody plants, Springer – Verlag, NY
- Zimmerman, M. H. and Brown, C. L. Trees – Structure and Function, Springer- Verlag, Berlin.

