

**SARDAR PATEL UNIVERSITY**  
**Programme: MSC (Genetics)**  
**Semester: III**  
**Syllabus with effect from: June 2010**

<b>Paper Code:</b> PS03EGEN01	<b>Total Credits: 4</b>
<b>Title Of Paper:</b> Genetics of Mammalian Development	

Unit	Description in detail	Weightage (%)
<b>1</b>	<b>Overview of embryogenesis in mammals:</b> Structures of spermatozoa and ovum Fertilization, Cleavage and blastulation, Gastrulation <b>Organogenesis and Stem cells</b> Sex determination in mammals Types and functions of stem cells Development of human brain Epidermis and the origin of cutaneous structures	<b>25 %</b>
<b>2</b>	<b>Teratogenesis and Aging:</b> Teratogenic agents, Classification of teratomas, Tumorigenesis Overview of tumor suppressor genes, protooncogenes and oncogenes Causes and genetic regulation of aging, Promoting longevity	<b>25 %</b>
<b>3</b>	<b>Gene expression during Developmental:</b> Differential gene expression during development, RNA localization techniques Determination of functions of genes, Overview of transcriptional factors and human development	<b>25 %</b>
<b>4</b>	<b>Medical implications of Developmental biology:</b> Genetic errors of human development, Identification of defective genes Nature of human syndromes, Gene expression and human diseases Infertility.	<b>25 %</b>

**Basic Text & Reference Books:**

- Scott F Gilbert, Developmental Biology, 8<sup>th</sup> edition, Sinauer Associates Inc., USA. ISBN 0-87893-250-X
- Shastry and Shukul, Developmental Biology, Rastogi Publications, ISBN 81-7133-734-1
- Klug W. S. & Cummings M. R. Concepts of Genetics. Seventh edition. Pearson Education. ISBN 81-317-0811-X
- WWW.devbio.com
- Fundamentals of Genetics by B D Singh.
- P. K. Gupta, Genetics. Rastogi Publications, Meerut, India, ISBN: 81-7133-842-9.
- Gardner E. J., Simmons M. J. & Snustad D. P. Principles of Genetics. Eighth edition. John Wiley & Sons Inc. ISBN 9971-51-346-3.
- Elements of Breeding and breeds of cattle and Buffalo- P Kanakraj, Jaypee Brothers Medical, ISBN: 978-8180618420

