**HUMAN GENETICS AND CHROMOSOMAL DISORDERS CREDIT HOURS 3+0**

**LEARNING OUTCOMES:**

**Students will be able to:**

1. Aware of patterns and ways of transmission of genetic disorders.
2. Familiar with the importance and limitations of genetic testing, genetic screening and prenatal diagnosis.

**COURSE CONTENTS:**

Pattern of transmission of single gene traits; pedigree analysis with criteria for identifications of various modes of inheritance. Genetic defects in prenatal development; normal chromosome picture, congenital malformations, metabolic variation and diseases: In-born error in amino acid, carbohydrates, lipids and nucleic acid metabolism. Errors in transport system. Inherited variations, genetic linkage. Family melled, somatic hybridization, deletion mapping and duplication mapping, Genetic counseling, eugenics, twin studies. Autosomal reciprocal translocations. Sex chromosomes translocations. Robertsonian translocation, centromere fissions, insertions, inversion etc. Parental sex chromosome and aneuploidy, fragile X syndromes, down syndrome, XY female, XX male, true hermaphrodite, pregnancy loss and infertility, parental age counseling and screening for fetal trisomy, prenatal diagnostic procedures, chromosome abnormalities detected at prenatal diagnosis.

**RECOMMENDED BOOKS:**

1. Gardner, [R. J. M.](http://r1.us.rmi.yahoo.com/rmi/http:/shop.barnesandnoble.com/booksearch/results.asp/rmivars?target=_top?userid=5GSYPRKEDD&mscssid=Q0CPA1W7PCP48LLFA60VG66MN7V3ER2D&sourceid=00033868504992221418&bfdate=03%2D04%2D2002+01%3A25%3A47&author_last=Gardner&author_first=R%2E+J%2E+McKinlay&match=exact&options=and) and Sutherland, [G. R.](http://r1.us.rmi.yahoo.com/rmi/http:/shop.barnesandnoble.com/booksearch/results.asp/rmivars?target=_top?userid=5GSYPRKEDD&mscssid=Q0CPA1W7PCP48LLFA60VG66MN7V3ER2D&sourceid=00033868504992221418&bfdate=03%2D04%2D2002+01%3A25%3A47&author_last=Sutherland&author_first=Grant+R%2E&match=exact&options=and) 1996. Chromosome Abnormalities and Genetic Counseling, Oxford University Press, N.Y.
2. Gerdes, L. I. 2014. Human genetics. Farmington Hills, Mich : Greenhaven Press.
3. Lewis, R. 2015. Human genetics: Concepts and applications. McGraw-Hill.
4. Strachan, T., Goodship, J., & Chinnery, P. F. 2015. Genetics and genomics in medicine. New York : Garland Science/Taylor & Francis Group.
5. Wolfe, J. 2016. Genetic testing and gene therapy.New York : Britannica Educational Publishing in association with Rosen Educational Services.