Code	Subject Title	Cr. Hrs	Semester
BOT-304	Microbial and Molecular Genetics Lab	1	V
Year	Discipline		
3	Botany		

Syllabus Outline: Study of Microbiological Techniques with relation to Genetics and Numerical Problems.

Course Outline:

Numerical Problems:

- **a)** Recombination in Bacteria
- **b)** Recombination in Viruses
- **c)** Gene Mutation
- **d)** Transposable Genetic Elements
- **e)** Control of Gene Expression
- **f)** Mechanism of Genetic Change – Recombination

Practicals:

- **a)** Bacterial Genetics
- **b)** Bacterial Culture Techniques
- **c)** Gram Staining
- **d)** Transformation
- **e)** Conjugation

Module Aims: Course is designed for study of microbes and their growth behavior, Selective Recombination of Bacteria and Viruses, Effects of Mutation on possible gene outcome.

Learning Strategies:

1. Lectures
2. Group Discussion
3. Laboratory work
4. Seminar/ Workshop

Learning Outcome: Students expected to identify Bacteria, their Reproduction, Strategy Recombination Pattern and Gene Expression.

Assessment Strategies:

1. Lecture Based Examination (Objective and Subjective)
2. Assignments
3. Class discussion
4. Quiz
5. Tests

Books Recommended:

1. **Maloy, S.R., Cronan, Jr., J.E. and Freifelder, D. (2008).** *Microbial Genetics*, Jonest Bartelet Publisher, Boston, London.

2. **Old, R.W. and Primrose, S.B. (2007).** *Principals of Gene Manipulation*, (3rd Ed.), University of California Press.

3. **Goodenough, U. (2004).** *Genetics*, Saunders College Publishing, USA.

4. **Grifths A.J.F., Miller, J.H., Suzuki, D.T., Lewontin, R.C. and Gelbart, W.M. (2003).** *An introduction to Genetic Analysis.* W.H. Freeman and Company, New York.

5. **Strickberger, M.W. (2003).** *Genetics*, (5th Ed.), *Macmillan Publishers, London.*

6. **Lewin, L. (2000).** *Gene V.* John Wiley and Sons. New York.

7. **Brown, T.A. (1999).** *Genetics, A Molecular Approach*, Van Nostrand Reinhold Int., London.

8. **Smith-Keary, P.F. (1995).** *Genetic Structure and Function*, Macmillan Press, Ltd., London.