Code	Subject Title	Cr. Hrs	Semester
BOT-314	Gene Cloning (Advance Course) Lab	1	VI

Year	Discipline
3	Botany

Syllabus Outline: Techniques for the DNA Isolation and Transformation.

Course Outline:

1. Problems Related to Gene Cloning
2. Conjugation
3. Total Cell lysate preparation
4. Plasmid DNA Isolation
5. Plasmid DNA detection on Gel Electrophoresis
6. Transformation of Plasmid DNA to *E. coli.*

Module Aims: Module designed to impart a detailed knowledge to students about Cloning Techniques and their Practical Applications.

Learning Strategies:

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

Learning Outcome: Students are expected to have knowledge about parameters involved in Cloning of Desired Gene in Cloning Vector, Useful Approach for Isolation of Gene of Interest and its Practical Applications.

Assessment Strategies:

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

Books Recommended:

1. **Primrose, S.B. and Twyman, R.M. (2006).** *Principles of Gene Manipulation and Genomics.* Blackwell Scientific Publications.

2. **Pierca, B.A. (2005).** *Genetics*; *A Conceptual Approach.* W. H. Freeman and Company, New York.

3. **Gardner, E.J. (2004).** *Principles of Genetics,* John Willey and Sons, New York.

4. **Primrose, S.B., Twyman, R.M. and Old, R.W. (2004).** *Principles of Gene Manipulation, an Introduction to Genetic Engineering.* (6th Ed.), Blackwell Scientific Publications.

5. **Wilson, J. and Hunt, T. (2004).** *Molecular Biology of the Cell: The Problems Book,* Garland Publishing Inc.

6. **Old, R.W. and Primrose, S.B. (2003).** *Principals of Gene Manipulation*, University of California Press.

7. **Glover, D.M. (2001).** *Gene Cloning. The Mechanics* of DNA Manipulation. Chapman and Hall.

8. **Brown, T.A. (2000).** *Gene Cloning and DNA Analysis. An Introduction.* Chapman and Hall.