Program Midtern of Discipline “Cell culture and biotechnology for tissue engineering ”

6D070100 Biotechnology

**Module 1** Structure, feature and functions of nucleic acids

Methods of extraction of nucleic acids from different biological materials

Methods used for cell lysis

Main principles of RNA extraction

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Main approaches and methods of molecular biotechnology

Hybridization Conditions and Melting Temperature

Analysis and Characterization of nucleic acids

Important Factors that affect Stringency and Hybridization

Relation between melting temperature and Oligonucleotide concentration

Modification of nuclear acids

Different types of endonucleases and their use in molecular biotechnology

Main principles of electrophoresis for analysis of nucleic acids

Nucleic Acid Detection DNA

Mismatches and single nucleotide polymorphisms (SNPs)

Use of SDS-PAGE for analysis of nuclear

Separation Techniques for different types of DNA

Characterization of DNA cloning techniques

Subclone characterization and use.

Multiple cloning site (MCS)characterization and use in molecular biotechnology.

Sequencing techniques