

**B.Tech. Biotechnology: Semester-VII**  
**BBT 705: VACCINE TECHNOLOGY**

Teaching Scheme	Examination Scheme
Lectures: 3 hrs/Week	Class Test -12 Marks
Tutorials: 1 hr/Week	Teachers Assessment – 6 Marks
Credits: 4	Attendance – 12 Marks
	End Semester Exam – 70 marks

### Course Objective

The course aims to build on concepts of vaccine, its formulation, storage and administration. Also the different forms of vaccines and their effect.

### Course Learning Outcomes

After completing the course, the student shall be able to:

- CO1: Medical applications of vaccines
- CO2: The immune system of our body.
- CO3: Demonstrate knowledge and understanding of antigen-antibody interactions.
- CO4: Describe in detail the essential features and formulations of in biotechnology.

#### Unit 1: Introduction

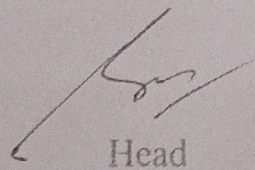
Introduction to vaccines and immunity. Fundamental concepts in vaccination and traditional methods of vaccine production. Production of DPT and Rabies vaccine. Production of Modern Vaccines - production of Hepatitis vaccine

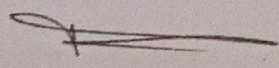
#### Unit 2: Applications

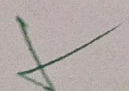
Applications of immunological methods in diagnosis;  
B-cell epitope prediction methods  
T-cell epitope prediction methods  
Resources to study antibodies, antigen-antibody interactions

#### Unit 3: Immunoinformatics

Reverse vaccinology and immunoinformatics  
Databases in Immunology  
Structure Activity Relationship – QSARs and QSPRs, QSAR Methodology  
Various Descriptors used in QSARs: Electronics; Topology; Quantum Chemical based Descriptors.  
Neural Networks and Principle Components Analysis in the QSAR equations

  
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