

**Programme Outcomes, Programme Specific Outcomes and Course Outcomes  
For UG Programmes running in NBU Campus**

**Programme Name: B.Sc. in Tea Science**

**Number of Semesters: Six (Semester I – Semester VI)**



Department of Tea Science  
**University of North Bengal**  
West Bengal, INDIA

**Programme Outcomes**

- Train students on all aspects of Tea plantation and Tea industry to meet the demand for young Executives.
- Build up a basic knowledge on tea cultivation and industry.

**Programme Specific Outcomes**

- Training students in all aspects of tea to meet the demand for young Executives
- Employment opportunity in tea industry
- Employment opportunity in tea tasting
- Employment opportunity in tea auction centre and agrochemical industry

**Course Outcomes**

SEMESTER—I		
Course Code	Course Name	Course Outcomes
	Plants and Animals	Knowledge gained: <ul style="list-style-type: none"> <li>• Knowledge on diversity of plants.</li> <li>• Knowledge on diversity of animals.</li> </ul> Skill gained: <ul style="list-style-type: none"> <li>• Identification of plants from different plant groups.</li> <li>• Identification of animals from different groups based on visible characters.</li> </ul> Competence developed <ul style="list-style-type: none"> <li>• Through knowledge on plant and animal diversity</li> </ul>
SEMESTER—II		
Course Code	Course Name	Course Outcomes
	Tea culture, Botany and	Knowledge gained: <ul style="list-style-type: none"> <li>• Knowledge on Tea culture in different areas of tea cultivation.</li> </ul>

	Microbiology	<ul style="list-style-type: none"> <li>• Botany of tea plant.</li> <li>• Microbiology and its influence in tea cultivation and manufacturing.</li> <li>• Nitrogen fixing microbes and their involvement in enriching soil.</li> </ul> Skill gained: <ul style="list-style-type: none"> <li>• Growing of tea plants</li> <li>• Microbial culture maintenance</li> <li>• Staining of microbes.</li> </ul> Competence developed <ul style="list-style-type: none"> <li>• Development of knowledge and skill on some techniques of tea cultivation, botany and microbiology.</li> </ul>
	Basic computer application And Biostatistics	Knowledge gained: <ul style="list-style-type: none"> <li>• Knowledge on hardware of computers.</li> <li>• Knowledge on some working procedure in computers.</li> <li>• Knowledge on sampling, central tendency and statistical analysis.</li> </ul> Skill gained: <ul style="list-style-type: none"> <li>• Working knowledge of some basic software.</li> <li>• Use of sampling and statistical analysis in tea cultivation and industry</li> </ul> Competence developed <ul style="list-style-type: none"> <li>• Development of idea on basic computer application and Biostatistics</li> </ul>
SEMESTER—III		
Course Code	Course Name	Course Outcomes
	Morphology Anatomy	Knowledge gained: <ul style="list-style-type: none"> <li>• Knowledge on morphology of tea plant</li> <li>• Knowledge on anatomy of tea plant.</li> </ul> Skill gained: <ul style="list-style-type: none"> <li>• Identification of tea plants based on morphology.</li> <li>• Working out of anatomy of tea plants..</li> </ul> Competence developed <ul style="list-style-type: none"> <li>• Basic idea on morphology and anatomy of tea plants</li> </ul>
	Cell biology Plant breeding	Knowledge gained: <ul style="list-style-type: none"> <li>• Organization and structure of cell organelles.</li> <li>• Breeding strategies in tea plant..</li> </ul> Skill gained: <ul style="list-style-type: none"> <li>• Microscopic study of cell organelles</li> <li>• Chromosome study under microscope</li> <li>• Grafting of tea plants</li> <li>• Cloning of tea plants</li> <li>• Hybridization of tea plants</li> </ul> Competence developed <ul style="list-style-type: none"> <li>• Ability to determine cellular structure dynamics</li> <li>• Breed tea plants by vegetative and sexual methods</li> </ul>
	Plant systematic Economic botany	Knowledge gained: <ul style="list-style-type: none"> <li>• Classify plants based on characters tics</li> <li>• Study of useful plants</li> <li>• Naming of plants in a scientific manner</li> </ul> Skill gained: <ul style="list-style-type: none"> <li>• Identifying plants on their morphological features</li> <li>• Cultivation practice of useful plants</li> </ul> Competence developed <ul style="list-style-type: none"> <li>• Knowledge and cultivation skill of plants around us.</li> <li>• Usefulness of plants around us.</li> </ul>
SEMESTER—IV		

Course Code	Course Name	Course Outcomes
	Fundamentals of biochemistry	<p>Knowledge gained:</p> <ul style="list-style-type: none"> <li>• Knowledge on biomolecules.</li> <li>• Study of metabolic pathways of useful biomolecules.</li> </ul> <p>Skill gained:</p> <ul style="list-style-type: none"> <li>• Separation of biomolecules.</li> <li>• Quantification of biomolecules.</li> </ul> <p>Competence developed</p> <ul style="list-style-type: none"> <li>• Knowledge on basic structure, synthesis and quantification of biomolecules.</li> </ul>
	Genetics and molecular biology	<p>Knowledge gained:</p> <ul style="list-style-type: none"> <li>• Knowledge on basic principles of genetics.</li> <li>• Study of genetic basis of variations</li> <li>• Study of genetics that govern population structure</li> </ul> <p>Skill gained:</p> <ul style="list-style-type: none"> <li>• Working knowledge on molecular techniques like AFLP, RAPD, RFLP etc.</li> </ul> <p>Competence developed</p> <ul style="list-style-type: none"> <li>• Knowledge on involvement of genetic and molecular principles in organisms.</li> </ul>
	Basic principles of instrumentation	<p>Knowledge gained:</p> <ul style="list-style-type: none"> <li>• Knowledge on working principles of instruments and apparatus.</li> </ul> <p>Skill gained:</p> <ul style="list-style-type: none"> <li>• Staining and preparation of samples for instrumentation.</li> <li>• Working knowledge of instruments.</li> </ul> <p>Competence developed</p> <ul style="list-style-type: none"> <li>• Knowledge on how an instrument works and its application in tea research and industry.</li> </ul>
SEMESTER—V		
Course Code	Course Name	Course Outcomes
	Plant physiology and metabolism	<p>knowledge gained:</p> <ul style="list-style-type: none"> <li>• Study of physiological principles guiding plant physiology.</li> <li>• Study of metabolic pathways.</li> </ul> <p>Skill gained:</p> <ul style="list-style-type: none"> <li>• Experimentation and functioning of basic physiological involvement in plants</li> </ul> <p>Competence developed</p> <ul style="list-style-type: none"> <li>• Working on Plant physiology and metabolism</li> </ul>
	Plant ecology and phytogeography	<p>knowledge gained:</p> <ul style="list-style-type: none"> <li>• Gaining knowledge on ecology and environment.</li> <li>• Knowledge on functioning of ecosystem.</li> <li>• Phytogeography realms of earth and its influence on tea plantation.</li> </ul> <p>Skill gained:</p> <ul style="list-style-type: none"> <li>• Skills on ecological function analysis.</li> <li>• Estimation of environmental parameters.</li> </ul> <p>Competence developed</p> <ul style="list-style-type: none"> <li>• Through knowledge on plant ecology and phytogeography with special reference to tea plantation and industry</li> </ul>
SEMESTER—VI		
Course Code	Course Name	Course Outcomes
	Laws of environment, public health and labour	<p>Knowledge gained:</p> <ul style="list-style-type: none"> <li>• Knowledge on Laws of environment.</li> <li>• Involvement of public health and its importance in tea industry.</li> <li>• Management of labor and its related issues.</li> </ul> <p>Skill gained:</p>

		<ul style="list-style-type: none"> <li>• Application of Laws of environment.</li> <li>• Framing management strategies for management of labor.</li> </ul> <p>Competence developed</p> <ul style="list-style-type: none"> <li>• Implementation of environmental laws and strategies for management of labour.</li> </ul>
	Soil and integrated nutrient management	<p>Knowledge gained:</p> <ul style="list-style-type: none"> <li>• Study of soil profile.</li> <li>• Study of role and deficiency symptoms of macro nutrients.</li> <li>• Knowledge about integrated pest management.</li> <li>• Chemical and organic additives to soil</li> </ul> <p>Skill gained:</p> <ul style="list-style-type: none"> <li>• Study of soil profile.</li> <li>• Identification of deficiency symptoms.</li> <li>• Knowledge about integrated pest management.</li> </ul> <p>Competence developed</p> <ul style="list-style-type: none"> <li>• Thorough knowledge on soil and nutrient management.</li> <li>• Identifying deficiency of nutrients</li> </ul>