

Academic Year	2022-23
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**B.P.H.E. Society's
Ahmednagar College, Ahmednagar
Internal Quality Assurance Cell
CO, PO, and PSO Attainment Sheet**

Department Name	
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Program Name	B.Sc.
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Program Outcomes(PO)	
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PO1	To introduce the concepts in various allied subjects
PO2	To enrich students' knowledge
PO3	To help the students to build interdisciplinary approach
PO4	To inculcate sense of scientific responsibilities and social and environment awareness
PO5	To help students build-up a progressive and successful career
PO6	The coursework is designed to train the students to work independently and also to adapt themselves to work efficiently in intra, inter and multidisciplinary teams as per the standard guidelines
PO7	The students will be able to develop skills, attitude and values required for self-directed, lifelong commitment to learning and professional development
PO8	The student will be able to adopt code of ethics in professional and social context. Also able to demonstrate exemplary professional, ethical and legal behaviors in decision making.
PO9	The student will able to comprehend the complex interconnections between the biotechnology, medicine, economy and legal aspects of biotechnology to transform our society and culture as a whole.
PO10	The students can find employment opportunities in pharma industries, healthcare, food industry, dairies, academia and research both in private and public sectors as well as an entrepreneur.
PO11	The student will utilize critical inquiry to analyze, design and conduct experiments to solve problems in various courses of biotechnology by the use of classical as well as modern approach
PO12	The student will be able to execute their professional roles as biotechnology professionals, employers and employees in various industries, regulators, researchers, educators, managers and an entrepreneur for the upliftment of the society.

Program Specific Outcome(PSO)	
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PSO1	The interdisciplinary nature of biotechnology helps student to understand living systems including animal, plant, microbes and their studies from molecular biology to cell biology, from biochemistry to biophysics, from genetic engineering to stem cell research, from bioinformatics to genomics-proteomics, from environmental biology to biodiversity, from microbiology to bioprocess engineering, from bioremediation to material transformation and so on.
PSO2	Application of these studies on living organisms and their bioprocesses are learnt by students. Economic and social renaissance is staged on biotechnology especially, since it's biomedical and cutting edge technological applications are tremendously powerful in shaping student with exciting future.
PSO3	Biotechnologists are always in demand as an efficient work force in fundamental research and industries.

Academic Year :	2022-23
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Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-101			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Fundamentals of Chemistry-I		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No	1		CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name	Sonawane K B		CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	To understand rate laws, rate equations of different types of reactions, determine rate constant values, order of reactions, effect of temperature and other factors on reaction rate, homogenous catalysis, catalytic effect on reaction rate, equations related to chemical catalysis	CO5															
	CO2	To learn the basic concepts of Stereochemistry	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	To understand about the formation and stability of reaction intermediates and their electrophilic and nucleophilic behavior.																
	CO4	To understand reaction kinetics, reaction thermodynamics and tautomerism of organic compounds.																
	CO5	To understand the basic concept of kinetic theory of gases and know how to solve numerical problems related to that topic																

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-102			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Fundamentals of Physics		CO1	3	2	2	3	3	2	2	2	2	2	2	3	3	2	

Semester No	1	CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	2	3	
Teacher Name	Iram Shaikh	CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	2	
Course Outcomes		CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	3	
	CO1	The students will use mathematics and computation to describe and manipulate fundamental physical constructs and to solve problems.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Demonstrate a growing conceptual understanding of the basic fields of physics.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40
	CO3	The students use basic experimental apparatus common to the study of physical phenomena																
	CO4	To understand the basic laws and explore the fundamental concepts of physics																
	CO5	To carry out experiments to understand the laws and concepts of Physics.																

Class	F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs			
Subject Code	BBt-103		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Subject Name	Biochemistry I	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2	
Semester No	1	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3	
Teacher Name	Sonawane K B	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2	
Course Outcomes		CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2	
	CO1	Be able to frame a scientific question or problem.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	2	
	CO2	Be able to undertake investigations and perform analyses that provide information about biochemical questions and help to solve biochemical problems.	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Be able to demonstrate accurate quantitative analysis and computer literacy.																
	CO4	Be able to communicate effectively, through writing and oral communication, the results of scientific investigations.																
	CO5	Be able to understand and effectively apply scientific ethics.																

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-104			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Biophysics		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No	1		CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name	IRAM SHAIKH		CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	Biophysics should be apply the principles of physical sciences to understand and solve biological complexities.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Using the knowledge gained during the course, students should be able to address the academic and industrial research problems	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Perform experiments which involve making correct and appropriate use of a range of scientific equipment, keeping an accurate record of experimental work and analysing results and reaching non-trivial conclusions from them.																
	CO4	Communicate at an advanced level the results of both theoretical and experimental work in various forms including written reports, oral presentations and poster presentations.																
	CO5	Collaborate effectively with team members for scientific investigations and for the process of learning.																

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-105			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Animal Sciences I		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No	1		CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name	KATKE PM		CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2

	CO1	The interdisciplinary nature of biotechnology integrates living systems including animals and their studies.	CO5																
	CO2	Be able to understand knowledge in basic and applied aspects of animal sciences.	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20	
	CO3	the students will understand the scientific responsibilities and social awareness about animals and their diversity.																	
	CO4	students will learn various model organisms, parasitic behavior of animal in humans.																	
	CO5	Students learn Animal diversity as a source of food, Textiles, Shelter etc.																	

Class	F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs			
Subject Code	BBt-106		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Subject Name	Plant Sciences I	CO1	3	2	2	3	3	2	2	2	2	2	2	2	3	3	2	
Semester No	1	CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	2	3	
Teacher Name	GALANDE J S	CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	2	
Course Outcomes		CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	3	
	CO1	Be able to formulate original questions about plants into empirically testable hypotheses.	CO5															
	CO2	They will be able to collect and analyze data obtained from original research, and translate and apply experimental data to advance the field and solve real-world problems.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40
	CO3	Student will synthesize and apply knowledge to better understand and manage plant-based systems.																
	CO4	Learning and getting familiar with morphology & plant cell.																
	CO5	Knowledge about unique, silent features and chemical compositions of cell wall.																

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-107			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Microbiology I		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No	1		CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name	GAVHANE A J		CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	The student will be able to understand history of use of microorganisms in nature and human life	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	The students will learn about types of microorganisms and their significance. The students will know about similarities and differences about microorganisms	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Be able to understand what is Microbiology and various branches and scope of subject																
	CO4	The students will be familiar with concept of prokaryotes and eukaryotes and classification of microorganisms																
	CO5	The students will understand about bacterial ultrastructure.																

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-108			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Biomathematics and Biostatistics		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No	1		CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name	FARHEEN SHAIKH		CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	Be able to communicate mathematical and logical ideas in writing.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Be able to apply problem solving and logical skills.	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Have a deeper understanding of mathematical theory.																
	CO4	Have a solid knowledge of elementary statistics.																

	CO5	They will able to choose and apply appropriate statistical methods for analyzing one or two variables.
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Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-109			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Practical In Chemistry and Biochemistry		CO1	3	2	2	3	3	2	2	2	2	2	2	3	3	2	
Semester No	1		CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	3	
Teacher Name	SONAWANE KOMAL		CO3	3	3	2	2	2	2	2	2	2	3	3	3	3	2	
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	
	CO1	The students will learn practical or laboratory experience or	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	2	
	CO2	The student will learn to test water hardness , PH meter, colorimetry and applications	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.40	
	CO3	The students will learn about solution and reagent preparations																
	CO4	The student will learn isolation and study about biomolecules from plant sources																
	CO5	To establish an understanding of the quantitative aspects of biochemical analyses.																

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-110			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Practical In Plant and Animal science		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No	1		CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name	KATKE & GALANDE		CO3	3	2	1	2	2	2	2	2	1	3	3	3	3	2	
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	To study about algae, fungi, bryophytes, pteridophytes , gymnosperms	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	To study on morphological parameters of angiosperms and anatomy of dicot and monocots	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20

	CO3	The students will learn about Parmecium and culturing techniques
	CO4	The students will learn about Hydra and culturing techniques
	CO5	The students will learn about Drosophila and culturing techniques

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-111			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Practical In Microbiology & Biostatistics-I		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No	1		CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name	GAVHANE & SHAIKH		CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	the student will understand basic laborator rules and practices in microbiology.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	The students will learn use of glasswares, instruments and their application commonly use in microbiology laboratory	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	To learn practical skill for observation of miroorganisms by suning various staining method and																
	CO4	The students wii lknow method of handling of microorganisms and biosafety measures																
	CO5	The will understand how to apply the scientific method and hypothesis testing in the design and execution of experiments																

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-112			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Practical In Physics and Biophysics		CO1	3	2	2	3	3	2	2	2	2	2	2	3	3	2	
Semester No	1		CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	3	
Teacher Name	IRAM SHAIKH		CO3	3	3	2	2	2	2	2	2	2	3	3	3	3	2	
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	

	CO1	To gain practical knowledge by applying the experimental methods to correlate with the Physics theory.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	To learn the usage of electrical and optical systems for various measurements.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40
	CO3	To learn about travelling microscope																
	CO4	The students will learn to determine diffusion pressure, surface tension																
	CO5	The students will learn about osmosis, dialysis and use of GM counter																

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-201			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Fundamentals of Chemistry II		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No	2		CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name	SONAWANE		CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	To learn in detail about the first and second laws of Chemical Thermodynamics and the related terms; to get idea about thermo-chemistry and thermodynamic relationships and system of variable compositions.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	To learn experimentally how to do the potentiometric and conductometric titrations of different compositions, determine the K_a of weak acid and heat of neutralization of a strong acid by a strong base.	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	To understand about different types of electrophilic and nucleophilic aromatic substitution reactions, reaction intermediates and their mechanisms.																
	CO4	To study the properties and reactions of carbonyl compounds and corresponding reaction mechanisms.																

	CO5	To learn preparations, reactions and corresponding reaction mechanisms of organometallic compounds.
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Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-202			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Biochemistry II		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No	2		CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name	SONAWANE KOMAL		CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	The students will be able to understand:nature of biochemistry	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	physical and chemical properties of molecules as a linkage of biochemistry	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	concept and properties of acid-base relationship																
	CO4	students shall be able to: • assess and relate the concepts of chemistry to biology. identify the structures of amino acids, their chemical properties and their organization into polypeptides and proteins.																
	CO5	understand the structure and functions of fundamental mono, di and trisaccharide and polysaccharides. R																

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-203			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Bioinstrumentation		CO1	3	2	2	3	3	2	2	2	2	2	2	3	3	2	
Semester No	2		CO2	3	3	3	1	2	2	2	3	3	2	3	2	2	3	
Teacher Name	IRAM SHAIKH		CO3	3	3	2	2	2	2	2	2	2	3	3	3	3	2	
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	2	3	3	3	3	
	CO1	To learn Design and understand biomedical instruments that comply with the regulatory standards for medical devices.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2

	CO2	Describe the key considerations for biological signal generation and measurements.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40
	CO3	To learn Design and apply knowledge within the context of a biomedical device.																
	CO4	An understanding of biomedical instrumentation principles in aspects of device design and applications.																
	CO5	To understand thermoregulation mechanisms in body and their control																

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-204			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Animal Sciences II		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No	2		CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name	KATKE P M		CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	students learn integrated principles of nutrition and physiology define issues, enable reasoning, and devise solutions for progress in animal health and production	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Demonstrate hands-on skills for optimal care and management of farm and companion animals	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Communicate effectively to deliver evolving scientific content in animal science to producers and the public																
	CO4	Employ analytical skills to think critically, identify knowledge gaps and devise solutions to animal-related issues relevant to health and well-being of society.																
	CO5	Apply principles of animal welfare to guide evolving practices for the ethical treatment and management of animals																

Class	F.Y.B.Sc.Biotechnology	Course	Program Outcomes												PSOs		
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Subject Code	BBt-205	Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Subject Name	Plant Sciences II	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2	
Semester No	2	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3	
Teacher Name	GALANDE J S	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2	
Course Outcomes		CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2	
	CO1	To understand the plants and plant cells in relation to water	CO5	3	2	2	3	2	2	3	2	1	2	3	3	3	2	
	CO2	Understand the process of photosynthesis in higher plants with particular emphasis on light and dark reactions, C3 and C4 pathways	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Understand the respiration in higher plants with particular emphasis on aerobic and anaerobic respiration																
	CO4	Learn and understand about mineral nutrition in plants.																
	CO5	To understand the economic importance of Cereals, Pulses, Oil seeds, Fiber plants, Medicinal Plants, Timber yielding, Beverages with examples																

Class	F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-206		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Microbiology II	CO1	3	2	2	3	3	2	2	2	2	2	2	2	3	3	2
Semester No	2	CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	2	3
Teacher Name	GAVHANE A J	CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	2
Course Outcomes		CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	3
	CO1	The students will learn about design of media for bacteria and fungi	CO5	3	2	2	3	2	2	3	2	1	2	3	3	3	2
	CO2	will have knowledge about nutritional classification of bacteria	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.40
	CO3	will learn about Growth and reproduction of microorganisms															
	CO4	will have knowledge of different sterilization methods and e															
	CO5	will learn about antibiotics and their types															

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-207		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Biomathematics and Biostatistics-II	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		2	CO2	2	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name		FARHEEN SHAIKH	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	Be able to communicate mathematical and logical ideas in writing.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Be able to apply problem solving and logical skills.	Average	2.80	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Have a deeper understanding of mathematical theory.																
	CO4	Have a solid knowledge of elementary statistics.																
	CO5	They will able to choose and apply appropriate statistical methods for analyzing one or two variables.6.They use technology to perform descriptive and inferential data analysis for one or two variables.																

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-208		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Computer in biology	CO1	3	2	2	3	3	2	2	2	2	2	2	2	3	3	2
Semester No		2	CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	2	3
Teacher Name		FARHEEN SHAIKH	CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	3
	CO1	Develop ability to analyze a problem, identify and define the computing requirements, which may be appropriate to its solution.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	To prepare students to undertake careers involving problem solving using computer science and technologies.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40
	CO3	Develop ability to pursue advanced studies and research in computer science.																

	CO4	To understand biological information stored in various databases is available online through internet
	CO5	Students learn computational biology refers to the hypothesis based investigation of a specific biological problem using computers

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-209			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Practical In Chemistry & Biochemistry II		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No	2		CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name	SONAWANE K B		CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	The student will learn about Viscometer and use.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	The students will learn titration method for estimation of acids	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	They will understand stereochemistry.																
	CO4	To learn techniques of estimation of biomolecules and enzyme activity.																
	CO5	To learn thin layer chromatography and application																

Class		F.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-210			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Practical In Plant and Animal science II		CO1	3	2	2	3	3	2	2	2	2	2	2	2	3	3	2
Semester No	2		CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	2	3
Teacher Name	KATKE & GALANDE		CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	3
	CO1	To study the process of osmosis, turgor pressure and diffusion pressure	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	To determine of rate of respiration	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40

	CO3	To study about economically important plants
	CO4	To study of Plasmodium sps, Fasciola sp. Honey Bee.
	CO5	To study about Collection, Classification and preservation of Insects

Class		Course Outcomes	Program Outcomes												PSOs		
Subject Code			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
F.Y.B.Sc. Biotechnology																	
BBt-211																	
Subject Name		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name		CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes		CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
CO1		CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
CO2		Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
CO3																	
CO4																	
CO5																	

Class		Course Outcomes	Program Outcomes												PSOs		
Subject Code			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
F.Y.B.Sc. Biotechnology																	
BBt-212																	
Subject Name		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name		CO3	3	3	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes		CO4	3	1	3	2	1	2	2	3	3	3	2	3	2	3	2

	CO1	The Information Technology prepares a student for basic knowledge using computer to solve data processing problems in life.	CO5																
	CO2	Demonstrate a knowledge and understanding of using computers to solve problems related to practical applications.	Average	3	2	2	3	2	2	2	2	3	2	1	2	3	3	3	2
	CO3	Choose and apply appropriate statistical methods for analyzing one or two variables.																	
	CO4	Interpret statistical results correctly, effectively, and in context.																	
	CO5	The student will learn Hypothesis testing how to analyse scientific data																	

Academic Year :	2022-23
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Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-301		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Cell Biology I	CO1	3	2	2	3	3	2	2	2	2	2	2	3	3	2	
Semester No		3	CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	3	
Teacher Name		BHOPE R V	CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	2	
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	
	CO1	This course introduces the students to the basics of cell and its components.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	2	
	CO2	This gives them a strong foundation on the basic unit of life	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.40	
	CO3	At the end of the course, the student has a strong foundation on the functions of the cell.																

	CO4	To understand the structures and purposes of basic components of eukaryotic cells, especially macromolecules, membranes, and organelles
	CO5	To understand structure and function of various cell organelle.

Class		S. Y. B. Sc. Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-302		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Molecular Biology I	CO1	3	2	2	3	3	2	2	2	2	2	2	2	3	3	2
Semester No		3	CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	2	3
Teacher Name		BHOPE R V	CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	3
	CO1	To understand the structure of DNA through Watson & Crick model	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	The course teaches the students about genes, and genome organization and comparison of these in different organisms	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40
	CO3	They learn about structure and function of DNA, RNA																
	CO4	It mainly describe central dogma of biology in eukaryotic and prokaryotes.																
	CO5	Students learn about basic replication process																

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-303		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Genetics	CO1	3	2	2	3	3	2	1	2	2	1	2	2	2	3	2
Semester No		3	CO2	3	3	3	1	1	2	2	1	3	2	2	3	1	2	3
Teacher Name		SONAWANE K B	CO3	2	2	1	2	2	2	2	2	1	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	Students will be taught Mendelian genetics, their principles and gene interaction.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	They learn about chromosomal aberrations and structure of chromosomes	Average	2.80	2.00	2.20	2.20	1.80	2.20	1.80	2.20	2.20	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	The student will gain a basic understanding on human genetics and hereditary.																
	CO4	The student will gain a basic understanding on human genetics and hereditary																
	CO5	To learn the concepts of Linkage.																

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-304		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Metabolism	CO1	3	2	2	3	3	2	2	2	2	2	2	3	3	2	

Semester No		3	CO2	3	3	3	1	2	2	2	2	2	3	3	2	3	2	2	3
Teacher Name		SONAWANE K B	CO3	3	3	2	2	2	2	2	2	2	2	2	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	3	2	3	3	3	3
	CO1	The student will be able to learn Carbohydrate catabolism, and its association with cellular energy production, and carbohydrate anabolism in plants and animal cells.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	3	2
	CO2	The student will be able to learn Lipid biosynthesis, acids and cholesterol, ketone bodies, acidosis, ketosis Degradation of fatty	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.80	2.40
	CO3	The student will learn and understand about the Biosynthesis of purines and pyrimidine nucleotides, degradation of nucleotides, salvage pathways, biosynthesis and biodegradation of amino acids. Inborn errors of metabolism.																	
	CO4	It helps the students in appreciating the integrated approach of interrelated pathways of catabolism and anabolism																	
	CO5	It also emphasizes on metabolic disorders at molecular level.																	

Class	S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-305		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

Subject Name		Environmental Biotechnology	CO1	3	2	2	3	3	2	2	2	2	2	2	2	3	3	2
Semester No		3	CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	2	3
Teacher Name		GALANDE J S	CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	3
	CO1	Students after learning this course able to	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Understand ecosystems and chains. They would understand and analyze environmental relationships with a better assessment of the mechanisms of environmental components like atmosphere, hydrosphere and lithosphere.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40
	CO3	Classify microbes according to energy source and carbon source and evaluate energy outcome of the energy metabolism according to electron acceptor and electron donor usage.																
	CO4	Describe suitable methods for characterizing the activity, function, diversity, and composition of microbial communities																

	CO5	Explain the microbial processes and growth requirements underlying the activated sludge process, nitrification, denitrification, enhanced phosphorus removal, and anaerobic digestion
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Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-306		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Bio analytical Techniques	CO1	3	2	2	3	3	2	1	2	2	1	2	2	2	3	2
Semester No		3	CO2	3	3	3	1	1	2	2	1	3	2	2	3	1	2	3
Teacher Name		SONAWANE K B	CO3	2	2	1	2	2	2	2	2	1	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	Students will be able to diagnose a specific biochemical genetic disorder	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Students will be able to develop technical aspects of analyses for a diagnostic biochemical laboratory	Average	2.80	2.00	2.20	2.20	1.80	2.20	1.80	2.20	2.20	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Students will be able to handle various equipment's used in biochemical analysis and troubleshoot them																

	CO4	Students will be able develop competence in handling various chromatographic techniques and apply them in isolating and characterizing different biological molecules.
	CO5	Understanding the applications of centrifugation and chromatography in biological investigations

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-307		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		AECC-I Environment science theory paper 1	CO1	3	2	2	3	3	2	2	2	2	2	2	3	3	2	
Semester No		3	CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	3	
Teacher Name		ANUJA BHALERAO	CO3	3	3	2	2	2	2	2	2	2	3	3	3	3	2	
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	
	CO1	Build awareness about environment, scope, and importance for sustainable development	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	2	

	CO2	Students will understand ecology, biogeography, and ecosystem structure. This will provide the awareness on ecological and historical foundations for understanding the distribution and abundance of species and the changes in their distribution and abundance over time and climatic impact.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40
	CO3	Gaining knowledge to assess the conditions and trends of biodiversity either globally or sub globally and to understand it's necessity to measure the abundance of all organisms over space and time.																
	CO4	Study and analyze various aspects of Biotechnology with respect to environment																
	CO5	Understanding and assimilating the specific concepts and terminology of environmental biotechnology.																

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-308		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		AECC-II Language theory paper 1	CO1	3	2	2	3	3	2	1	2	2	1	2	2	2	3	2
Semester No		3	CO2	3	3	3	1	1	2	2	1	3	2	2	3	1	2	3
Teacher Name		ATHAWALE	CO3	2	2	1	2	2	2	2	2	1	1	3	3	3	3	2

Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	To enable speaking and writing grammatically correct sentences in English	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	To develop effective writing skills.	Average	2.80	2.00	2.20	2.20	1.80	2.20	1.80	2.20	2.20	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	To build fluency in English.																
	CO4	Students would build spoken and written competency in English.																
	CO5	Students build communication skills																

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-309		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Practical in Cell Biology and Genetics	CO1	3	2	2	3	3	2	2	2	2	2	2	2	3	3	2
Semester No		3	CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	2	3
Teacher Name		BHOPE R V & SONAWANE	CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	3
	CO1	Student will able to study of Prokaryotic and Eukaryotic cell structure	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Along with this they will also learn protein estimation and separation methods.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40
	CO3	Student will able to prepare reagent																
	CO4	Student will able to study karyotype analysis																
	CO5	Observation of cells under microscope																

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-310		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Practical in Bio analytical Techniques	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		3	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name		SONAWANE	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	Practical in Bio analytical Techniques	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	To provide scientific understanding of analytical techniques and detail interpretation of results	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	To be able to use selected analytical techniques. 2. Familiarity with working principals, tools and techniques of analytical techniques.																
	CO4	To understand the strengths, limitations and creative use of techniques for problem-solving																
	CO5	Student will able to determine λ max of Protein, solutions using spectrophotometer																

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-311		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

Subject Name		Practical in Molecular Biology and Environmental Biotechnology	CO1	3	2	2	3	3	2	1	2	2	1	2	2	2	3	2
Semester No		3	CO2	3	3	3	1	1	2	2	1	3	2	2	3	1	2	3
Teacher Name		BHOPE R V, GALANDE	CO3	2	2	1	2	2	2	2	2	1	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	Prepare lab solutions and reagent	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Understanding instructions and operate DNA equipment	Average	2.80	2.00	2.20	2.20	1.80	2.20	1.80	2.20	2.20	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Use statistical methods to analyze genetic data.																
	CO4	Use computer and internet to search the latest information in DNA																
	CO5	Student will able to study polluted and unpolluted soil by physical and chemical properties																

Class	S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-401		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Cell Biology II	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No	4	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name	BHOPE R V	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes		CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2

	CO1	Student will understand the basis of cell division and regulation	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Students acquire knowledge of cell signalling and receptors	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Relate how cell movement and cell-cell communication occur and discuss mechanisms of signal transduction.																
	CO4	Outlines the processes that controls eukaryotic cell cycle, apoptosis including better understanding of cancer																
	CO5	will understand the concept of cell death and apoptosis																

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-402		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Molecular Biology II	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		4	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name		BHOPE R V	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	2	3	2	3	3	2
	CO1	Students will focus on the transcription process	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Will understand regulation of gene expression	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Will gain the knowledge on translation process																
	CO4	Will know about the DNA damage and repair																

	CO5	Can differentiate between prokaryotic and eukaryotic molecular processes
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Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-403		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Immunology	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		4	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name		BHOPE R V	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	To promote critical thinking among students	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	to provide students with a foundation in immunological processes;	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	to provide students with knowledge on how the immune system works building on their previous knowledge from biochemistry, genetics, cell biology and microbiology;																
	CO4	be able to clearly state the role of the immune system;																
	CO5	be able to compare and contrast the innate versus adaptive immune systems;																

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-404		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

Subject Name		Animal Development	CO1	3	2	2	3	3	2	2	2	2	2	2	2	3	3	2
Semester No		4	CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	2	3
Teacher Name		KATKE P M	CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	3
	CO1	The course is so designed for acquiring knowledge to know the process of reproduction and the development of embryo.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	The objective of this course is to provide a comprehensive understanding of the concepts of early animal development.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40
	CO3	Students taking this course must develop a critical appreciation of methodologies specifically used to study the process of embryonic development in animals.																
	CO4	Understands about various concepts of genetics and its importance in human health																
	CO5	Develops empathy and love towards the animals																

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-405		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Plant Development	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2

Semester No		4	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name		GALANDE J S	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	Upon successful completion of this subject student should be able to acquire a deep knowledge in techniques, mechanisms and biotechnological methods in plant development as: Students well understood the principals and unique feature of development as they are able to describe the developmental process in plants.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Students will become skilled at basic theoretical concepts about pattern formation in plants at vegetative and reproductive phases. Gained knowledge of all the stages of development and are able to identify specimen easily.	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	The basic development pathway understood and depicted with diagrams by studying the various model system.																
	CO4	Student understood the concept of microsporogenesis, Megasporogenesis, double fertilization, Endosperm development by performing various practical, identified the stages																

	CO5	Students are able to co-relate the knowledge of developmental biology with other subjects like Molecular biology, Biochemistry, physiology and Genetics.
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Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-406		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Microbial Biotechnology	CO1	3	2	2	3	3	2	1	2	2	1	2	2	2	3	2
Semester No		4	CO2	3	3	3	1	1	2	2	1	3	2	2	3	1	2	3
Teacher Name		GAVHANE A J	CO3	2	2	1	2	2	2	2	2	1	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	students will learn about applications of different microorganisms in various fields like food,dairy medical, industrial, pharmaceutical industries, environment and agricultural	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	students will acquire knowledge about food Microbiology like food spoilage, kinds of organisms involved for it,different methods of food preservation and factors affecting for the same	Average	2.80	2.00	2.20	2.20	1.80	2.20	1.80	2.20	2.20	1.60	2.20	2.80	2.20	2.80	2.20

	CO3	students will acquire knowledge about food Microbiology like food spoilage, kinds of organisms involved for it,different methods of food preservation and factors affecting for the same
	CO4	The students will be familiar with concepts in Dairy Microbiology like composition of milk,milk processing to obtain different milk products.They can understand sources of milk contamination, milk and milk product spoilage, preservation
	CO5	Students are able to understand the importance of Normal flora,and concepts of Medical Microbiology.It helps students to understand various microbial causes behind infections and etiology of infections.It includes all the details about cause,infection ,pathogenesis,transmission,lab oratory diagnosis,treatment and preventive measures

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-407		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		EVS- 241 AECC-III Environment science theory paper 2	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		4	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3

Teacher Name		ANUJA BHALERAO	CO3	3	2	1	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	3	2	3	2	3	2
	CO1	Upon successful completion of this subject student should be able to acquire: Student understood the concept of environmental pollution, types of pollutants and related hazards.	CO5																
				3	2	2	3	2	2	2	3	2	1	2	3	3	3	3	2
	CO2	Acquire knowledge on environment protection acts and understand the need to conserve environment by implementing policies with the help of different organizations.	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20	
	CO3	Students will understand the structure, growth and the interactions of populations in the environment. Build awareness on disaster management, environmental movements and ethics.																	
	CO4	Field visit enhance the skill techniques among the students to document assets, study local polluted site and ecosystem structure and environmental impact.																	
	CO5	understand the balance between environment and ecosystem																	

Class	S.Y.B.Sc.Biotechnology	Course	Program Outcomes	PSOs
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Subject Code	BBt-408		Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	LA-241 AECC- IV Language theory paper 2		CO1	3	2	2	3	3	2	2	2	2	2	2	2	3	3	2
Semester No	4		CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	2	3
Teacher Name	ATHWALE P		CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	3
	CO1	The main purpose of this course is to equip the students with the nuances of the English language which includes proficiency in grammar and its effective usage in speaking and writing.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	It further helps them to prepare for various competitive exams and to keep up with the increasing demand for English in Indian society and at the global level.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40
	CO3	It will also help in developing their overall confidence and personality.																
	CO4	will be able to present paper																
	CO5	will be able to present poster in a competition																

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-409			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

Subject Name		Practical in Molecular Biology and Microbial Biotechnology	CO1	3	2	2	3	3	2	2	2	2	2	1	2	2	2	3	2
Semester No		4	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3	3
Teacher Name		BHOPE , GAVHANE	CO3	3	2	1	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	3	2	3	2	3	2
	CO1	Extraction of DNA from various sources	CO5	3	2	2	3	2	2	2	3	2	2	1	2	3	3	3	2
	CO2	Extraction of RNA from different sources	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20	2.20
	CO3	student will able to prepare reagent																	
	CO4	student will able to study absorption spectra and quantitation of DNA, RNA and proteins																	
	CO5	Student will able to separat proteins SDS-PAGE																	

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-410		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Practical in Animal and Plant Development	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		4	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name		KATKE , GALANDE	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	Prc. in ADP n PDP	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2

	CO2	Hands on training on different methods like dissection, sectioning and staining. Students well understood and depicted basic plant developmental diagrams	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Gained knowledge of RAM, SAM and florally induced meristem by learnings various staining techniques																
	CO4	Students will understand how to perform various practical on microsporogenesis and female development by employing suitable technique																
	CO5	Students understood the basic concepts of embryogenesis and well able to differential in dicots and monocot plants at embryo development stage																

Class		S.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-411		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Practical in Cell biology and immunology	CO1	3	2	2	3	3	2	2	2	2	2	2	3	3	2	
Semester No		4	CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	3	
Teacher Name		BHOPE R V	CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	2	
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	
	CO1	Differentiate between mitosis and meiosis	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	2	

	CO2	Studying the antigen antibody reaction	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.80	2.40
	CO3	Determining blood group																
	CO4	To make students develop an understanding about practical aspects of the components of the immune system as well as their function.																
	CO5	Basic as well as advanced methods will be taught to detect different antigen and antibody interactions,																

Academic Year :	2022-23
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Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt- 501		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Industrial Microbiology	CO1	3	2	2	3	3	2	2	2	2	2	2	3	3	2	
Semester No		5	CO2	3	3	3	1	2	2	2	2	3	3	2	3	2	3	
Teacher Name		GAVHANE A J	CO3	3	3	2	2	2	2	2	2	2	2	3	3	3	2	
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	3	
	CO1	This course empasis on applications of biotechnology in industry..It helps students to know about various aspects of fermentation processes likes concept of fermentation and various types.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	2	
	CO2	student will learn about methods of screening for industrial important microorganisms,strain improvment programs,and their preservation methods	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80	2.80	2.40	
	CO3	This course empasis on applications of biotechnology in industry..It helps students to know about various aspects of fermentation processes likes concept of fermentation and various types.																
	CO4	The students will understand about design of bioractors and parts and various types. It helps to know about monitring and control various parameters to monitor and control fermentation process. It gives knowledge about fermentation media comonents,optimization sterilization methods																

	CO5	It also allows students to understand about upstream and downstream processing.
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Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-502		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		R- DNA technology	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		5	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name		BHOPE R V	CO3	3	3	2	2	2	2	2	2	1	3	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	2	3	2	3	2	2
	CO1	This course teaches RDNA technology techniques and their application in the field of genetic engineering	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Course helps to understand the basic concept like tools and enzymes used in RDT	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20
	CO3	They learn about plasmids, vectors and other vectors used for gene transfer																
	CO4	gain knowledge on the construction of genomic and cDNA libraries & its applications																
	CO5	Understand the concept and applications of PCR																

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-503		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Plant Tissue Culture	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		5	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3

Teacher Name		GALANDE J S	CO3	3	3	2	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	2	3	2	2
	CO1	Students will understand the basic concepts and terminology used in plant tissue culture.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	3	2
	CO2	- Students will understand the basic techniques to establish different types of in vitro cultures by themselves due to hand on training in the subject.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20	2.20
	CO3	Concept and calculations for media preparation very well learnt as the media used for different types of culture were prepared by the students.																	
	CO4	Concept and calculations for media preparation very well learnt as the media used for different types of culture were prepared by the students.																	
	CO5	The knowledge of tissue culture techniques is used for designing projects, practical performance, and preparation of glassware for practical.																	

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-504		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Animal Tissue Culture	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		5	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name		KATKE	CO3	3	3	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	2	3	2
	CO1	Develop a fundamental understanding of basic concepts of animal tissue culture methods and their applications in the field of Biotechnology.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2

	CO2	Evaluate applications of various concepts & techniques of animal and plant tissue culture to facilitate biotechnological advancement and innovations.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20
	CO3	Utilize proper aseptic technique in laminar flow hood and laboratory bench.																
	CO4	Apply skills in culturing and maintaining mammalian cells including chick embryo cells.																
	CO5	Formulate and apply knowledge of fluorescent markers and stains in cell biology research.																

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-505		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Applied biotechnology I	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		5	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name		KATKE	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	The course gives an introduction to various fields in Biotechnology such as Agriculture Waste Recycling, Biotechnology in Diagnosis Molecular Diagnostics, Marine Biotechnology and Nanobiotechnology	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	The candidate will obtain knowledge and understanding of Agriculture Waste Recycling and Biomass brequetting	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	The candidate will obtain knowledge and understanding of Marine derived pharmaceuticals																
	CO4	Students learn Biotechnology in Molecular Diagnostics																

	CO5	Understand the foundational concepts of molecular biology, and how these impact biotechnology research and development in the diverse fields that span healthcare and agriculture.
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Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-506		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Biodiversity and Systematics	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		5	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name		KATKE	CO3	3	3	2	2	2	2	2	2	1	3	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	2	3	2
	CO1	The course gives an introduction to terrestrial and aquatic biodiversity and conservation biology, and common methods to conserve the environment and the biological diversity.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	The candidate will obtain knowledge and understanding of Patterns and processes in biodiversity	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20
	CO3	The candidate will obtain knowledge and understanding The values of biodiversity																
	CO4	The candidate will obtain knowledge and understanding The threats to biodiversity																
	CO5	The candidate will obtain knowledge and understanding Different methods within conservation biology																

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-507		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

Subject Name		SEC – I : Summer Industrial Internship / Review writing/ Start up Design or Case study Report	CO1	3	2	2	3	3	2	2	2	2	2	1	2	2	2	3	2
Semester No		5	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3	3
Teacher Name			CO3	3	2	1	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	3	2
	CO1	Learn to appreciate work and its function in the economy.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	3	2
	CO2	Develop work habits and attitudes necessary for job success.	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20	2.20
	CO3	Students will learn how to conduct and write a literature review.																	
	CO4	This includes learning how to design a literature review and manage and analyze your data.																	
	CO5	Students should be able to apply the skills obtained in writing generic business and scientific field reports.																	

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-508		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		SEC – II : Project formulation and presentation	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		5	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name			CO3	3	3	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	2	3	2
	CO1	Grasp the main issues and questions in project identification, formulation, and design	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2

	CO2	Understand the processes to follow in formulating projects to identify problems for primary stakeholders and set appropriate project objectives	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20
	CO3	Ensure that both alternative approaches and alternative means of implementation are fully considered and appropriate choices made in selecting the best means of achieving given objectives																
	CO4	Know how to formulate logically consistent projects and to specify the key project elements in a clear and precise way • identify, assess, and reduce project risks																
	CO5	Translate a project design in to implementation tools, particularly work plans																

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-509		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Practical in Industrial Microbiology	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		5	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name		GAVHANE	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	The students will able to isolate industrially important microorganisms from nature	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	The students will able to implement strain improvement by mutation and isolation and identifcaation of mutants	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	The students are able to carry out primary metabolite production by using microranisms like organic acid.																
	CO4	The students are able to carry out secondary metabolite production by using microranisms like antibiotic.																

	CO5	The students learn to produce ethanol and wine at laboratory scale.It also allows students to know about qualitative and quantitative estimation of fermenttion products.
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Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-510		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Practical in Plant Tissue Culture and Animal Tissue Culture	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		5	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name		KATKE, GALANDE	CO3	3	3	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	2	3	2
	CO1	The students become familiar with equipment used in animal and plant tissue culture.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	The students become familiar with aseptic techniques,stock preparation, media preparation used in animal and plant tissue culture	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20
	CO3	The students will understand the safety procedures need for tissue culture.																
	CO4	The student will learn different tissue culture techniquess as callus and suspension culture																
	CO5	The student will learn effect of differnet plant growth hormones																

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-511		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Practical in R- DNA technology and Biodiversity	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2

Semester No		5	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name		BHOPE R V	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	This course teaches rDNA technology techniques and their application in the field of genetic engineering	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	After completion of this course, student will be able to	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	They learn about plasmids, vectors and gain knowledge on the construction of cDNA libraries																
	CO4	knowledge on gene manipulation, gene expression, etc. which prepares them for further studies in the area of genetic engineering																
	CO5	To learn gene transfer process and restriction mapping																

Class	T.Y.B.Sc.Biotechnology		Course Outcomes	Program Outcomes												PSOs		
Subject Code	BBt-601			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Enzyme and Enzyme Technology		CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		6	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name		SONAWANE K S	CO3	3	3	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	2	3	2
	CO1	It helps the students to learn the significant features of the biochemical catalysts.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	It helps the students to learn the methodology involved in assessing the enzyme activity and mechanism of enzyme action	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20
	CO3	It illustrates the enzyme catalysis, kinetics and regulatory aspects.																

	CO4	Explain the key structural and energetic factors which give rise to increased enzyme stability important for industrial application,
	CO5	Summarize current processes involved in industrial enzyme production, from protein production to purification and formulation,

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-602		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Agriculture Biotechnology	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		6	CO2	3	3	3	1	2	2	2	1	3	2	2	3	1	2	3
Teacher Name		GALANDE	CO3	3	2	1	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	3	2	3	3	3	2	3	2	3	2
	CO1	Students will learn introduction to agricultural biotechnology, its scope, role of it in india, world, concept of urban agriculture	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Students will learn classical way of agricultur	Average	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80	2.20	2.80	2.20
	CO3	Students will learn concept and application of e-agriculture , use of ICT in agriculture																
	CO4	Student will learnhoe to make draught and herbicide tolerant varities																
	CO5	Students will how to use greenhouse technology and computer controlled environment																

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-603		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Applied Biotechnology II	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2

Semester No		6	CO2	3	3	3	1	2	2	2	2	2	3	3	2	3	1	2	3	
Teacher Name		KATKE P M	CO3	3	3	2	2	2	2	2	2	2	2	1	3	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	3	2	3	2	
	CO1	Students will be able to gain fundamental knowledge in Environmental biotechnology and their applications	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	3	2	
	CO2	Develop and analyse models for enzyme catalysed reactions in cellular bioengineering and synthetic biology	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20		
	CO3	Students will be able to understand various facets of molecular procedures and basics of genomics, proteomics and metabolomics that could be employed in early diagnosis and prognosis of human diseases.																		
	CO4	Students will be able to gain hands on experience in gene cloning, protein expression and purification																		
	CO5	Students will be able to understand various facts of Stem cells and technology that could be employed in treatment of human diseases.																		

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-604		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Food and Pharmaceutical Biotechnology	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		6	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name		GAVHANE, KATKE	CO3	3	3	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	2	3	2

	CO1	Students will be able to understand the basics of food and human nutrition	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Students will be able to understand basic concepts of food microbiology and general principles of food hygiene and food safety management systems.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20
	CO3	Students will be able to learn about various food packaging techniques, types of non alcoholic beverages and about quality assurance programmes																
	CO4	To understand the clinical biochemistry of macronutrients.																
	CO5	To understand the cellular level functions, Drug development and discovery of new drugs.																

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-605		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Bioinformatics	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		6	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name		KATKE P M	CO3	3	3	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	2	3	2
	CO1	To build in candidates a strong foundation in interdisciplinary sciences such as Computer Sciences and Biological Sciences.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	to develop accelerated and precise technologies for industrial problems, and prepare them for productive careers in fields of biotechnology, pharmaceutical, bioinformatics, Research, and healthcare industries	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20

	CO3	to develop accelerated and precise technologies for industrial problems, and prepare them for productive careers in fields of biotechnology, pharmaceutical, bioinformatics, Research, and healthcare industries
	CO4	To address the challenges arising from the huge amount of genomic data and to overcome by analyzing and individualizing the corresponding drug responses towards appropriate drug specified dosages.
	CO5	The course put more emphasis on understanding the disease related problems at molecular level.

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt-606		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Bio safety and Bioethics and IPR	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		6	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name		GAVHANE A J	CO3	3	3	2	2	2	2	2	2	1	3	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	2	3	2	3	2	2
	CO1	To understand the rationale for and against IPR and especially patents.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	To understand why India has adopted National IPR Policy and be familiar with broad outline of patent regulations;	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20

	CO3	To understand different types of intellectual property rights in general and protection of products derived from biotechnology research and issues related to application and obtaining patents.
	CO4	To gain knowledge of biosafety and risk assessment of products derived from recombinant DNA research environment release of genetically modified organisms, national and international regulations.
	CO5	To understand ethical aspects related to biological, biomedical, health care and biotechnology research.

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt- 607 & 608		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		SEC – III & SEC – IV : Project	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		6	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name			CO3	3	3	2	2	2	2	2	2	1	3	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	2	3	2	3	2	2
	CO1	Students who complete this course will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	This course will help them to select an appropriate research design.	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20
	CO3	With the help of this course, students will be able to take up and implement a research project/ study.																

	CO4	Develop a rigorous experiment, sampling program and/or model that addresses the aims of the project
	CO5	Identify areas of greatest need with respect to project assessment, and directions for future research in that field

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt- 609		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Practical in Enzyme Technology	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		6	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name		SONAWANE K B	CO3	3	3	2	2	2	2	2	2	1	3	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	2	3	2	3	2	2
	CO1	Student will able to isolate enzyme	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	student will able to determine enzyme activity	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20
	CO3	student will able to check effect of different parameters on enzyme activity																
	CO4	Student will able to do Enzyme Immobilisation using gel entrapment method																
	CO5	Student will able to check effect of Substrate concentration on enzyme activity																

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt- 610		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Practical in Agriculture Biotechnology and Bioinformatics	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		6	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3

Teacher Name		KATKE, GALANDE	CO3	3	3	2	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	2	3	2	3
	CO1	student will learn Production of Spirulina/Azolla culture	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	3	2
	CO2	Estimation of chlorophyll and protein from Spirulina/Azolla culture	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20	2.20
	CO3	Isolation of Rhizobium from root nodules of leguminous crop and development of Rhizobium or Azotobacter Biofertilizer																	
	CO4	Demonstration of effect of Biofertilizer (above prepared Rhizobium or Azotobacter) on plant growth using pot culture																	
	CO5	Demonstration of effect of herbicide (anyone) on plant growth using pot culture																	

Class		T.Y.B.Sc.Biotechnology	Course Outcomes	Program Outcomes												PSOs		
Subject Code		BBt- 611		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Practical in Food and Pharmaceutical Biotechnology	CO1	3	2	2	3	3	2	2	2	2	1	2	2	2	3	2
Semester No		6	CO2	3	3	3	1	2	2	2	2	3	3	2	3	1	2	3
Teacher Name		GAVHANE, KATKE	CO3	3	3	2	2	2	2	2	2	2	1	3	3	3	3	2
Course Outcomes			CO4	3	1	3	2	1	2	2	3	3	3	2	3	2	3	2
	CO1	Students understand Kinetics and Statistics to bioprocesses	CO5	3	2	2	3	2	2	2	3	2	1	2	3	3	3	2
	CO2	Students learn Design different types of bioreactors	Average	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80	2.20	2.80	2.20
	CO3	Develop the bioprocess economics to industrial bioprocesses																
	CO4	Analyze the bioreactors detailed design of bioprocess industry equipment																

	CO5	Students perform experiments to detect and isolation of anti-infectives from plant and antibiotic potent test
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CO-PO Mapping

	Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	1 BBt-101	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	2 BBt-102	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	3 BBt-103	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	4 BBt-104	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	5 BBt-105	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	6 BBt-106	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	7 BBt-107	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	8 BBt-108	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	9 BBt-109	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	10 BBt-110	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	11 BBt-111	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	12 BBt-112	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	13 BBt-201	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	14 BBt-202	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	15 BBt-106	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	16 BBt-107	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	17 BBt-108	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	18 BBt-109	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	19 BBt-110	2.80	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	20 BBt-111	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	21 BBt-112	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	22 BBt-201	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	23 BBt-202	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
FY	24 BBt-202	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
	1 BBt-301	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	2 BBt-302	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	3 BBt-303	2.80	2.00	2.20	2.20	1.80	2.20	1.80	2.20	2.20	1.60	2.20	2.80
	4 BBt-304	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	5 BBt-305	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	6 BBt-306	2.80	2.00	2.20	2.20	1.80	2.20	1.80	2.20	2.20	1.60	2.20	2.80
	7 BBt-307	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	8 BBt-308	2.80	2.00	2.20	2.20	1.80	2.20	1.80	2.20	2.20	1.60	2.20	2.80
	9 BBt-309	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	10 BBt-310	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	11 BBt-311	2.80	2.00	2.20	2.20	1.80	2.20	1.80	2.20	2.20	1.60	2.20	2.80
SY	12 BBt-401	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	13 BBt-402	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	14 BBt-403	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	15 BBt-404	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
	16 BBt-405	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	17 BBt-406	2.80	2.00	2.20	2.20	1.80	2.20	1.80	2.20	2.20	1.60	2.20	2.80

		18	BBt-407	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
		19	BBt-408	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
		20	BBt-409	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
		21	BBt-410	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
	SY	22	BBt-411	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
		1	BBt- 501	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	2.20	2.20	2.80
		2	BBt-502	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		3	BBt-503	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		4	BBt-504	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		5	BBt-505	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
		6	BBt-506	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		7	BBt-507	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
		8	BBt-508	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		9	BBt-509	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
		10	BBt-510	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		11	BBt-511	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
		12	BBt-601	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		13	BBt-602	3.00	2.00	2.20	2.20	2.00	2.20	2.00	2.20	2.40	1.60	2.20	2.80
		14	BBt-603	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		15	BBt-604	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		16	BBt-605	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		17	BBt-606	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		18	BBt- 607 & 608	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		19	BBt- 609	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
		20	BBt- 610	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80
TY	TY	21	BBt- 611	3.00	2.20	2.40	2.20	2.00	2.00	2.00	2.40	2.40	1.80	2.20	2.80

CO-PO ATTAINMENT

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
2.04	1.36	1.496	1.496	1.36	1.496	1.36	1.496	1.632	1.088	1.496	1.904
2.04	1.496	1.632	1.496	1.36	1.36	1.36	1.632	1.632	1.496	1.496	1.904
2.04	1.36	1.496	1.496	1.36	1.496	1.36	1.496	1.632	1.088	1.496	1.904
2.52	1.68	1.848	1.848	1.68	1.848	1.68	1.848	2.016	1.344	1.848	2.352
1.56	1.04	1.144	1.144	1.04	1.144	1.04	1.144	1.248	0.832	1.144	1.456
1.56	1.144	1.248	1.144	1.04	1.04	1.04	1.248	1.248	1.144	1.144	1.456
1.56	1.04	1.144	1.144	1.04	1.144	1.04	1.144	1.248	0.832	1.144	1.456
2.04	1.36	1.496	1.496	1.36	1.496	1.36	1.496	1.632	1.088	1.496	1.904
3	2.2	2.4	2.2	2	2	2	2.4	2.4	2.2	2.2	2.8
3	2	2.2	2.2	2	2.2	2	2.2	2.4	1.6	2.2	2.8
3	2	2.2	2.2	2	2.2	2	2.2	2.4	1.6	2.2	2.8
2.04	1.496	1.632	1.496	1.36	1.36	1.36	1.632	1.632	1.496	1.496	1.904
2.04	1.36	1.496	1.496	1.36	1.496	1.36	1.496	1.632	1.088	1.496	1.904
1.56	1.04	1.848	1.848	1.68	1.848	1.68	1.848	2.016	1.344	1.848	2.352
2.04	1.496	1.632	1.496	1.36	1.36	1.36	1.632	1.632	1.496	1.496	1.904
2.52	1.68	1.848	1.848	1.68	1.848	1.68	1.848	2.016	1.344	1.848	2.352
2.04	1.36	1.496	1.496	1.36	1.496	1.36	1.496	1.632	1.088	1.496	1.904
1.56	1.144	1.248	1.144	1.04	1.04	1.04	1.248	1.248	1.144	1.144	1.456
1.456	1.04	1.144	1.144	1.04	1.144	1.04	1.144	1.248	0.832	1.144	1.456
3	2.2	2.4	2.2	2	2	2	2.4	2.4	2.2	2.2	2.8
1.56	1.04	1.144	1.144	1.04	1.144	1.04	1.144	1.248	0.832	1.144	1.456
2.04	1.496	1.632	1.496	1.36	1.36	1.36	1.632	1.632	1.496	1.496	1.904
2.04	1.36	1.496	1.496	1.36	1.496	1.36	1.496	1.632	1.088	1.496	1.904
2.52	1.848	2.016	1.848	1.68	1.68	1.68	2.016	2.016	1.512	1.848	2.352
1.56	1.144	1.248	1.144	1.04	1.04	1.04	1.248	1.248	1.144	1.144	1.456
1.56	1.144	1.248	1.144	1.04	1.04	1.04	1.248	1.248	1.144	1.144	1.456
1.456	1.04	1.144	1.144	0.936	1.144	0.936	1.144	1.144	0.832	1.144	1.456
1.56	1.144	1.248	1.144	1.04	1.04	1.04	1.248	1.248	1.144	1.144	1.456
2.52	1.848	2.016	1.848	1.68	1.68	1.68	2.016	2.016	1.848	1.848	2.352
1.456	1.04	1.144	1.144	0.936	1.144	0.936	1.144	1.144	0.832	1.144	1.456
1.56	1.144	1.248	1.144	1.04	1.04	1.04	1.248	1.248	1.144	1.144	1.456
2.8	2	2.2	2.2	1.8	2.2	1.8	2.2	2.2	1.6	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	2.2	2.2	2.8
1.56	1.04	1.144	1.144	1.04	1.144	1.04	1.144	1.248	0.832	1.144	1.456
1.456	1.04	1.144	1.144	0.936	1.144	0.936	1.144	1.144	0.832	1.144	1.456
3	2	2.2	2.2	2	2.2	2	2.2	2.4	1.6	2.2	2.8
3	2	2.2	2.2	2	2.2	2	2.2	2.4	1.6	2.2	2.8
3	2	2.2	2.2	2	2.2	2	2.2	2.4	1.6	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	2.2	2.2	2.8
2.04	1.36	1.496	1.496	1.36	1.496	1.36	1.496	1.632	1.088	1.496	1.904
1.904	1.36	1.496	1.496	1.224	1.496	1.224	1.496	1.496	1.088	1.496	1.904

3	2	2.2	2.2	2	2.2	2	2.2	2.4	1.6	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	2.2	2.2	2.8
2.52	1.68	1.848	1.848	1.68	1.848	1.68	1.848	2.016	1.344	1.848	2.352
3	2	2.2	2.2	2	2.2	2	2.2	2.4	1.6	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	2.2	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	2.2	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2	2.2	2.2	2	2.2	2	2.2	2.4	1.6	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2	2.2	2.2	2	2.2	2	2.2	2.4	1.6	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2	2.2	2.2	2	2.2	2	2.2	2.4	1.6	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2	2.2	2.2	2	2.2	2	2.2	2.4	1.6	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8
3	2.2	2.4	2.2	2	2	2	2.4	2.4	1.8	2.2	2.8

Percentage CO-PO ATTAINMENT

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
68	68	68	68	68	68	68	68	68	68	68	68
68	68	68	68	68	68	68	68	68	68	68	68
68	68	68	68	68	68	68	68	68	68	68	68
84	84	84	84	84	84	84	84	84	84	84	84
52	52	52	52	52	52	52	52	52	52	52	52
52	52	52	52	52	52	52	52	52	52	52	52
52	52	52	52	52	52	52	52	52	52	52	52
68	68	68	68	68	68	68	68	68	68	68	68
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100
68	68	68	68	68	68	68	68	68	68	68	68
68	68	68	68	68	68	68	68	68	68	68	68
52	52	84	84	84	84	84	84	84	84	84	84
68	68	68	68	68	68	68	68	68	68	68	68
84	84	84	84	84	84	84	84	84	84	84	84
68	68	68	68	68	68	68	68	68	68	68	68
52	52	52	52	52	52	52	52	52	52	52	52
52	52	52	52	52	52	52	52	52	52	52	52
100	100	100	100	100	100	100	100	100	100	100	100
52	52	52	52	52	52	52	52	52	52	52	52
68	68	68	68	68	68	68	68	68	68	68	68
68	68	68	68	68	68	68	68	68	68	68	68
84	84	84	84	84	84	84	84	84	84	84	84
52	52	52	52	52	52	52	52	52	52	52	52
52	52	52	52	52	52	52	52	52	52	52	52
52	52	52	52	52	52	52	52	52	52	52	52
52	52	52	52	52	52	52	52	52	52	52	52
84	84	84	84	84	84	84	84	84	84	84	84
52	52	52	52	52	52	52	52	52	52	52	52
52	52	52	52	52	52	52	52	52	52	52	52
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100
52	52	52	52	52	52	52	52	52	52	52	52
52	52	52	52	52	52	52	52	52	52	52	52
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100
68	68	68	68	68	68	68	68	68	68	68	68
68	68	68	68	68	68	68	68	68	68	68	68
100	100	100	100	100	100	100	100	100	100	100	100

CO-PSO MAPPING

CO-PSO ATTAINMENT

Percentage CO-PSO ATTAINMENT

	Course	PSO1	PSO2	PSO3
	1 BBT-101	2.20	2.80	2.20
	2 BBT-102	2.80	2.80	2.40
	3 BBT-103	2.20	2.80	2.20
	4 BBT-104	2.20	2.80	2.20
	5 BBT-105	2.20	2.80	2.20
	6 BBT-106	2.80	2.80	2.40
	7 BBT-107	2.20	2.80	2.20
	8 BBT-108	2.20	2.80	2.20
	9 BBT-109	2.80	2.80	2.40
	10 BBT-110	2.20	2.80	2.20
	11 BBT-111	2.20	2.80	2.20
	12 BBT-112	2.80	2.80	2.40
	13 BBT-201	2.20	2.80	2.20
	14 BBT-202	2.20	2.80	2.20
	15 BBT-106	2.80	2.80	2.40
	16 BBT-107	2.20	2.80	2.20
	17 BBT-108	2.20	2.80	2.20
	18 BBT-109	2.80	2.80	2.40
	19 BBT-110	2.20	2.80	2.20
	20 BBT-111	2.80	2.80	2.40
	21 BBT-112	2.20	2.80	2.20
	22 BBT-201	2.80	2.80	2.40
	23 BBT-106	2.20	2.80	2.20
	24 BBT-107	2.20	2.80	2.20
FY	1 BBT-108	2.80	2.80	2.40
	2 BBT-109	2.80	2.80	2.40
	3 BBT-110	2.20	2.80	2.20
	4 BBT-111	2.80	2.80	2.40
	5 BBT-112	2.80	2.80	2.40
	6 BBT-201	2.20	2.80	2.20
	7 BBT-307	2.80	2.80	2.40
	8 BBT-308	2.20	2.80	2.20
	9 BBT-309	2.80	2.80	2.40
	10 BBT-310	2.20	2.80	2.20
	11 BBT-311	2.20	2.80	2.20
	12 BBT-401	2.20	2.80	2.20
	13 BBT-402	2.20	2.80	2.20
	14 BBT-403	2.20	2.80	2.20
	15 BBT-404	2.80	2.80	2.40
	16 BBT-405	2.20	2.80	2.20
	17 BBT-406	2.20	2.80	2.20
	18 BBT-407	2.20	2.80	2.20
	19 BBT-408	2.80	2.80	2.40

Course	PSO1	PSO2	PSO3
BBt-101	1.496	1.904	1.496
BBt-102	1.904	1.904	1.632
BBt-103	1.496	1.904	1.496
BBt-104	1.848	2.352	1.848
BBt-105	1.144	1.456	1.144
BBt-106	1.456	1.456	1.248
BBt-107	1.144	1.456	1.144
BBt-108	1.496	1.904	1.496
BBt-109	2.8	2.8	2.4
BBt-110	2.2	2.8	2.2
BBt-111	2.2	2.8	2.2
BBt-112	1.904	1.904	1.632
BBt-201	1.496	1.904	1.496
BBt-202	1.144	1.456	1.144
BBt-105	1.904	1.904	1.632
BBt-106	1.848	2.352	1.848
BBt-107	1.496	1.904	1.496
BBt-108	1.456	1.456	1.248
BBt-109	1.144	1.456	1.144
BBt-110	2.8	2.8	2.4
BBt-111	1.144	1.456	1.144
BBt-112	1.904	1.904	1.632
BBt-201	1.496	1.904	1.496
BBt-202	1.848	2.352	1.848
BBt-301	1.456	1.456	1.248
BBt-302	1.456	1.456	1.248
BBt-303	1.144	1.456	1.144
BBt-304	1.456	1.456	1.248
BBt-305	2.352	2.352	2.016
BBt-306	1.144	1.456	1.144
BBt-307	1.456	1.456	1.248
BBt-308	2.2	2.8	2.2
BBt-309	2.8	2.8	2.4
BBt-310	1.144	1.456	1.144
BBt-311	1.144	1.456	1.144
BBt-401	2.2	2.8	2.2
BBt-402	2.2	2.8	2.2
BBt-403	2.2	2.8	2.2
BBt-404	2.8	2.8	2.4
BBt-405	1.496	1.904	1.496
BBt-406	1.496	1.904	1.496
BBt-407	2.2	2.8	2.2
BBt-408	2.8	2.8	2.4

Course	PSO1	PSO2	PSO3
BBt-101	68	68	68
BBt-102	68	68	68
BBt-103	68	68	68
BBt-104	84	84	84
BBt-105	52	52	52
BBt-106	52	52	52
BBt-107	52	52	52
BBt-108	68	68	68
BBt-109	100	100	100
BBt-110	100	100	100
BBt-111	100	100	100
BBt-112	68	68	68
BBt-201	68	68	68
BBt-202	52	52	52
BBt-105	68	68	68
BBt-106	84	84	84
BBt-107	68	68	68
BBt-108	52	52	52
BBt-109	52	52	52
BBt-110	100	100	100
BBt-111	52	52	52
BBt-112	68	68	68
BBt-201	68	68	68
BBt-202	84	84	84
BBt-301	52	52	52
BBt-302	52	52	52
BBt-303	52	52	52
BBt-304	52	52	52
BBt-305	84	84	84
BBt-306	52	52	52
BBt-307	52	52	52
BBt-308	100	100	100
BBt-309	100	100	100
BBt-310	52	52	52
BBt-311	52	52	52
BBt-401	100	100	100
BBt-402	100	100	100
BBt-403	100	100	100
BBt-404	100	100	100
BBt-405	68	68	68
BBt-406	68	68	68
BBt-407	100	100	100
BBt-408	100	100	100

SY	20	BBt-409	2.20	2.80	2.20
	21	BBt-410	2.20	2.80	2.20
	22	BBt-411	2.80	2.80	2.40
	1	BBt- 501	2.80	2.80	2.40
	2	BBt-502	2.20	2.80	2.20
	3	BBt-503	2.20	2.80	2.20
	4	BBt-504	2.20	2.80	2.20
	5	BBt-505	2.20	2.80	2.20
	6	BBt-506	2.20	2.80	2.20
	7	BBt-507	2.20	2.80	2.20
	8	BBt-508	2.20	2.80	2.20
	9	BBt-509	2.20	2.80	2.20
	10	BBt-510	2.20	2.80	2.20
	11	BBt-511	2.20	2.80	2.20
	12	BBt-601	2.20	2.80	2.20
	13	BBt-602	2.20	2.80	2.20
	14	BBt-603	2.20	2.80	2.20
15	BBt-604	2.20	2.80	2.20	
16	BBt-605	2.20	2.80	2.20	
17	BBt-606	2.20	2.80	2.20	
TY	18	BBt- 607 & 608	2.20	2.80	2.20
	19	BBt- 609	2.20	2.80	2.20
	20	BBt- 610	2.20	2.80	2.20
	21	BBt- 611	2.20	2.80	2.20

BBt-409	1.848	2.352	1.848
BBt-410	2.2	2.8	2.2
BBt-411	2.8	2.8	2.4
BBt- 501	2.8	2.8	2.4
BBt-502	2.2	2.8	2.2
BBt-503	2.2	2.8	2.2
BBt-504	2.2	2.8	2.2
BBt-505	2.2	2.8	2.2
BBt-506	2.2	2.8	2.2
BBt-507	2.2	2.8	2.2
BBt-508	2.2	2.8	2.2
BBt-509	2.2	2.8	2.2
BBt-510	2.2	2.8	2.2
BBt-511	2.2	2.8	2.2
BBt-601	2.2	2.8	2.2
BBt-602	2.2	2.8	2.2
BBt-603	2.2	2.8	2.2
BBt-604	2.2	2.8	2.2
BBt-605	2.2	2.8	2.2
BBt-606	2.2	2.8	2.2
BBt- 607 & 608	2.2	2.8	2.2
BBt- 609	2.2	2.8	2.2
BBt- 610	2.2	2.8	2.2
BBt- 611	2.2	2.8	2.2

BBt-409	84	84	84
BBt-410	100	100	100
BBt-411	100	100	100
BBt- 501	100	100	100
BBt-502	100	100	100
BBt-503	100	100	100
BBt-504	100	100	100
BBt-505	100	100	100
BBt-506	100	100	100
BBt-507	100	100	100
BBt-508	100	100	100
BBt-509	100	100	100
BBt-510	100	100	100
BBt-511	100	100	100
BBt-601	100	100	100
BBt-602	100	100	100
BBt-603	100	100	100
BBt-604	100	100	100
BBt-605	100	100	100
BBt-606	100	100	100
BBt- 607 & 608	100	100	100
BBt- 609	100	100	100
BBt- 610	100	100	100
BBt- 611	100	100	100