AMAR SHAHEED BABA AJIT SINGH JUJHAR SINGH MEMORIAL COLLEGE BELA ROPAR PUNJAB

DESCRIPTION OF PROGRAMME OUTCOMES

NAME OF THE DEAPRTMENT: Biotechnology & Food Processing

NAME OF THE PROGRAMME: M.Sc. (Hons.) biotechnology

P.O. No.	Description of Programme Outcome	Domain as per Bloom's Taxonomy	Level of Bloom Taxonomy*
PO-1	Communicate effectively with the biotechnology community and with society at large such as, being able to comprehend and write effective reports, make effective presentations-documentation and give and receive clear instructions.	**Cognitive**	**1**
PO-2	Identify the impact of professional biotechnology solutions in societal and environmental contexts and demonstrate the knowledge and need for sustainable development.	**Cognitive**	**1**
PO-3	Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs.	**Affective**	**1,2,3**
PO-4	Work effectively as an individual, member or the leader of diverse teams in multidisciplinary settings.	**Affective**	**1,2,3**
PO-5	Recognize the solutions for complex biological-based problems and design the process that address to the specific needs for the public health, safety and environmental considerations	**Psychomotor**	**1,2,3,4,5,6**
PO-6	Developthe processes and applications which will have profound impact on sectors such as agriculture, industry, healthcare and restoration of degraded environment to provide sustainable competitive edge to present society.	**Psychomotor**	**1,2,3,4,5,6**
PO-7	Possess knowledge and comprehension of the core and advanced knowledge associated with the	**Cognitive**	**1,2**

	profession of biotechnology, including molecular biology, pharmaceutical microbiology, cell biology etc.		
PO-8	Identify, select and apply appropriate methods and procedures, resources and modern biotechnology-related computing tools with an understanding of the limitations	**Affective**	**1,2,3**
PO-9	Utilize the principles of scientific enquiry, thinking analytically, clearly and critically while solving problems and making decisions during daily practices.	**Affective**	**1,2,3**
PO-10	Demonstrate effective planning abilities including time management. Resource management, delegation skills and organizational skills.	**Psychomotor**	**1,2,3**
PO-11/PSO1	Explain knowledge in the field of biotechnology and applied sciences.	**Cognitive**	**1,2**
PO-12/PSO2	Design and conduct experiments in biotechnology as well as analyze and interpret data.	**Psychomotor**	**1,2,3,4,5,6**
PO-13/PSO3	Demonstrate current techniques, skills and modern tools necessary for modeling and design of bioprocesses	**Cognitive , Psychomotor**	**1,2,3**
PO-14/PSO4	Develop and implement plans and organize work to meet deadlines.	**Cognitive**	**1,2,3,4,5,6**
PO-15/PSO5	Recognize and attain an opportunity in Entrepreneurship sector.	**Cognitive**	**1,2,3**

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEAPRTMENT: Biotechnology and Food Processing

NAME OF THE PROGRAMME: M. Sc Biotechnology

NAME OF COURSE :Introductory Microbiology (Paper- III)

NAME OF FACULTY :Love Singla

C.O. No.	Description of Course Outcome	Method/s of Assessment
CO-1	Demonstrate about parts of microscope, type and its principle, theory and practical skills in microscopy and their handling techniques and different methods of staining techniques	**Exams, Oral Exams, Quizzes, Home Assignments, Virtual Labs**
CO-2	Summarize the basic microbial structure and function and study the comparative characteristics of prokaryotes and eukaryotes.	**Exams, Oral Exams, Quizzes, Home Assignments, Virtual Labs, Authentic Problem solving**
CO-3	Evaluate various culture media and their applications and also understand various physical and chemical means of sterilization	**Exams, Oral Exams, Quizzes, Home Assignments**
CO-4	Explain general bacteriology and microbial techniques for isolation of pure cultures of bacteria, fungi and algae, master aseptic techniques.	**Exams, Oral Exams, Quizzes, Home Assignment**
CO-5	Comprehend the various methods for identification of unknown microorganisms, understand the microbial transport systems.	**Exams, Oral Exams, Quizzes, Home Assignments**
CO-6	Evaluate various physical and chemical growth requirements of bacteria and get equipped with various methods of bacterial growth measurement.	**Exams, Oral Exams, Quizzes, Home Assignments**

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEPARTMENT: Biotechnology and Food Processing

NAME OF THE PROGRAMME: M. Sc. Biotechnology

NAME OF COURSE :Practical pertaining to Paper- III

NAME OF FACULTY : Love Singla

C.O. No.	Description of Course Outcome	Method/s of Assessment
CO-1	Staining techniques in Microbiology-simple, negative and differential staining.	**Lab work, Virtual Labs, Class Assignment, Home Assignments**
CO-2	Isolation, purification, maintenance and preservation techniques of aerobic and anaerobic cultures.	**Lab work, Virtual Labs, Class Assignment, Home Assignments**
CO-3	Morphological, cultural and biochemical characterization of microorganisms, isolation of bacteria by pure culture techniques.	**Lab work, Virtual Labs, Class Assignment, Home Assignments**
CO-4	Measurement of size of microorganism by microscopic technique, checking motility of microorganism by hanging drop method and viability determination of microorganisms by microscopic technique.	**Lab work, Virtual Labs, Class Assignment, Home Assignments**
CO-5	Strain improvement by physical and chemical mutagenesis, presumptive and confirmation test for the determination of coliform bacteria.	**Lab work, Virtual Labs, Class Assignment, Home Assignments**
CO-6	Microbial growth measurements by different techniques and determination of factors affecting growth of microorganisms	**Lab work, Virtual Labs, Class Assignment, Home Assignments**

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEAPRTMENT: BIOTECHNOLOGY & FOOD PROCESSING

NAME OF THE PROGRAMME :M. Sc .Biotechnology.

NAME OF COURSE :Fundamentals of Fermentation Technology

NAME OF FACULTY : Parminder Kaur

C.O. No.	Description of Course Outcome	Methods of Assessment
CO-1	Explain Fermentation design and control; Fermentation products-primary metabolites, secondary metabolites and single cell proteins. Media microbial fermentations, Nutritional requirements, Chemically defined and complex media formulation.	**Exams, Class tests, presentations and Seminars.**
CO-2	DescribeFermentation types, Factors influencing liquid and solid state fermentations; Merits and demerits of different types of fermentations, Inoculums development Development of inoculum for bacterial, yeast and fungal fermentations at industrial level and Microbial growth kinetics.	**Exams, Class tests, class assignment, Presentations and Seminars.**

CO-3	Define General characteristics of fermentation modeling; Types of models; Criteria for selection of a suitable model, Immobilized biocatalysts, Immobilization of whole cells, Factors influencing the operational stability of immobilized biocatalyst.	**Exams, Class tests, class assignment, presentations and Seminars.**
CO-4	Demonstrate Biotransformations, Future of biotransformations, Production technology of different types of wines, beer and whisky.	**Class discussion, Class tests, group assignment, presentations and Seminars.**
CO-5	Discuss Baker's yeast; Single cell proteins-production, composition, economic parameters and constraints; Mass cultivation of *Spirulina*; Safety aspects of SCP.	**Class discussion, Class tests, class assignment, presentations and Seminars.**
CO-6	Enlist Production and applications of bioinsecticides, biopesticides and biofertilizers. Fermentative production of liquid fuels-ethanol, acetone and butanol, etc.; Factors affecting production of biofuels.	**Class discussion, Class tests, class assignment, presentations and Seminars.**

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEAPRTMENT: BIOTECHNOLOGY & FOOD PROCESSING

NAME OF THE PROGRAMME: M.Sc Biotechnology 2ND SEMESTER

NAME OF COURSE : Fundamentals of bioprocess development

NAME OF FACULTY :Parneet kaur

C.O. No.	Description of Course Outcome	Methods of Assessment
CO-1	Define chemical and Biochemical engineering, Enlist various applications of biochemical engineering in bioprocess development.	**Exams, Class tests, class assignment, and Seminars.**
CO-2	Describe basic concept in bioprocess development.	**Exams, Class tests, class assignment, Presentations and Seminars.**
CO-3	Identify different types of mode of operation used in bioprocess.	**Exams, Class tests, class assignment, presentations and Seminars.**
CO-4	Classify fluid flow , Heat transfer and Mass transfer process in bioprocess development.	**Exams, Class tests, class assignment, group discussion.**
CO-5	Enlist the various types of bioreactors used in bioprocess, Illustrate different types of monitoring and controlling devices used in bioprocess.	**Group discussions, class assignments, Exams.**

CO-6	Explain sterilization of bioreactors and media, Define scale-up of bioprocess , downstream processing and Bioprocess economics.	**Exams, group assignments .**

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEAPRTMENT: BIOTECHNOLOGY & FOOD PROCESSING

NAME OF THE PROGRAMME:M.Sc Biotechnology 2nd semester

NAME OF COURSE :Practical Pertaining to theory paper VII

NAME OF FACULTY :Parneet Kaur

C.O. No.	Description of Course Outcome	Methods of Assessment
CO-1	Demonstrate laboratory scale Bioreactor.	**Viva , quiz .**
CO-2	Perform isolation, extraction and purification of intracellular as well as extracellular bio-products using various biochemical techniques.	**Lab work**
CO-3	Analyze the thermal death time of *Bacillus staerothermophilus*.	**Lab work**
CO-4	Produce ethanol using free and immobilized cells.	**Lab work**
CO-5	Produce various types of wine using fermentative techniques.	**Lab work**
CO-6	Communicate Bioprocess development related concepts and experimental results through effective written and oral communication.	**Viva, quiz, class assignments**

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEAPRTMENT: Biotechnology and Food Processing

NAME OF THE PROGRAMME: M. Sc. (HONS) Biotechnology

NAME OF COURSE :Computer and Biostatistics (Paper XV)

NAME OF FACULTY :Love Singla

C.O. No.	Description of Course Outcome	Method/s of Assessment
CO-1	Describe the better understanding of the descriptive statistics and measures of association.	Exams, Oral Exams, Quizzes, Home Assignments
CO-2	Justify the basic principles of statistical inference, modelling and testing.	Exams, Oral Exams, Quizzes, Home Assignments, Class Assignments
CO-3	Conclude knowledge to recognize the type of problem they are dealing with and choose appropriate methods for analysing simple biological data sets.	Exams, Oral Exams, Quizzes, Home Assignments, Virtual Labs, Authentic Problem solving
CO-4	Demonstrate to perform the analysis with statistical software.	Exams, Oral Exams, Quizzes, Home Assignments, Authentic Problem solving
CO-5	Devise a general idea of how these methods could be used in practice in the	Exams, Oral Exams, Quizzes, Home Assignments

	field of biotechnology, drug development and clinical diagnostics and in fundamental academic research.	
CO-6	Comprehensive and detailed study of Binomial, poisson and normal distributions.	Exams, Oral Exams, Quizzes, Home Assignments, Virtual Labs, Authentic Problem solving

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEAPRTMENT : BIOTECHNOLOGY & FOOD PROCESSING

NAME OF THE PROGRAMME :M.Sc (Hons.)Biotechnology

NAME OF COURSE :Practical Pertaining to theory PAPER VII

NAME OF FACULTY :Mrs.Jaspreet Kaur

C.O. No.	Description of Course Outcome	Methods of Assessment
CO-1	Prepare medium and callus initiation	**Lab work**
CO-2	Perform callus subculturing from an established callus	**Lab work**
CO-3	Prepare growth curve of mammalian cell line in culture and determination of cell doubling time.	**Lab work**
CO-4	Analyse lymphocyte and monolayer culture technique ,viability test.	**Lab work**
CO-5	Demonstrate orientation to a tissue culture facility	**Viva ,quiz**
CO-6	Produce micropropagation of provided plant material.	**Lab work**

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DESCRIPTION OF COURSE OUTCOMES

NAME OF THE DEAPRTMENT : BIOTECHNOLOGY & FOOD PROCESSING

NAME OF THE PROGRAMME :M.Sc Biotechnology 2nd year

NAME OF COURSE :Tissue culture technology

NAME OF FACULTY :Mrs.Jaspreet Kaur

C.O. No.	Description of Course Outcome	Methods of Assessment
CO-1	Describe history of plant cell culture and animal cell culture.	**Exams, Class tests, class assignment, presentations and Seminars.**
CO-2	Illustrate callus and cell culture , regeneration and maintenance.	**Exams, Class tests, class assignment, Presentations and Seminars.**
CO-3	Explain protoplast culture and fusion, somaclonal variation.	**Exams, Class tests, class assignment, presentations and Seminars.**
CO-4	Discuss animal cell culture , establishment ,properties of animal cell line.	**Exams, Class tests, class assignment**
CO-5	Demonstrate culture techniques for laboratory and scale up of culture .	**Viva, quiz, class assignments**
CO-6	Enlist applications of somatic cell fusion ,animal,cell culture,stem cell culture ,animal cloning and embryo transfer	**Group discussions, Exams, Class tests.**

AMAR SHAHEED BABA AJIT SINGH JUJHAR SINGH MEMORIAL COLLEGE, BELA RUPNAGAR PUNJAB
MAPPING OF PROGRAM OUTCOME VERSUS COURSE OUTCOME
INTERNAL QUALITY ASSURANCE CELL

NAME OF DEPARTMENT: Biotechnology & Food Processing

NAME OF PROGRAMME: M.Sc Biotechnology

NAME OF COURSES

CORRELATION LEVEL:1,2, and 3;1-SLIGHT (LOW); 2-MODERATE (MEDIUM) 3- HIGH — MENTION GAP ANALYSIS AT THE END

S.NO	Year	Semester	Name of Course/Code		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
1	2019-20	I	Principles of Biochemistry-Paper-I	CO1	1	1	1		1	1	3		2	2	3	1	1	2	
				CO2	2	1	1		1	1	3		2	2	3	1	1	2	
				CO3	2	3	2		2	3	3	2	2	2	3	2	2	2	1
				CO4	1	1	2	2	2	3	3	3	3	2	3	3	3	2	1
				CO5	3	2	2				1			1	2	1			
				CO6	2			3						2				2	
2			Molecular Genetics (Paper II)	CO1	1	1	1		1	1	3		2	2	3	1	1	2	
				CO2	2	1	1		1	1	3		2	2	3	1	1	2	
				CO3	2	3	2		2	3	3	2	2	2	3	2	2	2	1
				CO4	1	1	2	2	2	3	3	3	3	2	3	3	3	2	1
				CO5	3	2	2				1			1	2	1			
				CO6	2			3						2				2	
3			Introductory Microbiology (Paper III)	CO1	1	3	1	3	1	1	1	1			3	3	1	1	1
				CO2	3	2	1	1	2	2	1	2	2		3	1	1		1
				CO3	1		2		1	1	3	2	1		2	3	3	2	2
				CO4	3	3	3	2	3	3	1	3	3	2	2	3	3	2	3

				CO5	3	3	3	2	1	1	2	1	3	3	3	3	3	3	3
4				**CO6**	2	1		1	1	1	2	2	2	2	2	3	3	1	1
			Immunology (Paper-IV)	**CO1**	2		1	2		3	1	2	2		3	1	1		1
				CO2	1	1	2	3		3	2	2	3	1	3	2	2		2
				CO3	2	2	1	3	1	3	1	3	3	1	2	3	2	1	2
				CO4	1	1	2	3	1	3	1	3	3		3	2	2		2
				CO5	3		2	2		3	2	3	3	2	3	2	3		1
5				**CO6**	3	1	2	2		3	1	2	2	1	3	2	3		1
			Practical pertaining to theory paper I and II	**CO1**	1	2	1					1	2	1	3	3	1	1	1
				CO2	2	1	1	1		2	1	2	1	1	3	1	1		1
				CO3	1			1				1	2	1	2	3	3	2	2
				CO4	2	2	1	2		1		1	2	2	2	3	3	2	3
				CO5	2	1	2			1	2	2	3	2	3	3	3	3	3
6				**CO6**	2	1	2			1		2	3	1	2	3	3	1	1
			Practical pertaining to theory paper III and IV	**CO1**	1	2	1					1	2	1	3	3	1	1	1
				CO2	2	1	1	1		2	1	2	1	1	3	1	1		1
				CO3	1			1				1	2	1	2	3	3	2	2
				CO4	2	2	1	2		1		1	2	2	2	3	3	2	3
				CO5	2	1	2			1	2	2	3	2	3	3	3	3	3
				CO6	2	1	2			1		2	3	1	2	3	3	1	1
7	**2019-20**	**II**	**Genetic Engineering (PaperV)**	**CO1**	1	1	1		1	1	3		2	2	3	1	1	2	
				CO2	2	1	1		1	1	3		2	2	3	1	1	2	
				CO3	2	3	2		2	3	3	2	2	2	3	2	2	2	1
				CO4	1	1	2	2	2	3	3	3	3	2	3	3	3	2	1
				CO5	3	2	2				1			1	2	1			
				CO6	2			3						2				2	
8			**Molecular Biophysics (Paper-VI)**	**CO1**	2	1	1		1	1	3		2	2	3	1	1	2	
				CO2	1	1	1		2	3	3	3	2	1	3	2	2	1	1

				CO3	1	2	2		2	3	3	2	2	2	3	3	3	2	2
				CO4	1	1	2	2	2	3	3	3	3	2	3	3	3	2	1
				CO5	3	2	2				1			1	2	1			
				CO6	2			3						2				2	
9			**Fundamentals of Bioprocess Developments (Paper VII)**	**CO1**	3	2	3			1	2			1	3				
				CO2	2	2	2	1	2	2	1	2	2		2	2	2		1
				CO3	2		1		2	1			2		3		2		
				CO4	3	3	3	2	3	2			3	3	2	2	3	1	1
				CO5	1		1		2		2			2	3		1		
				CO6	3		2	2	3	3			3	2	2		2	1	2
10			**Fundamentals of Fermentation Technology (Paper VIII)**	**CO1**	3	2	3			1	2			1	3				
				CO2	2	2	2	1	2	2	1	2	2		2	2	2		1
				CO3	2		1		2	1			2		3		2		
				CO4	3	3	3	2	3	2			3	3	2	2	3	1	1
				CO5	1		1		2		2			2	3		1		
				CO6	3		2	2	3	3			3	2	2		2	1	2
11			**Practical pertaining to theory paper V and VI**	**CO1**	2	1	1				2	3	2	1	2	3	3	1	3
				CO2	1				1	2	2	3	2	1	2	3	3	1	3
				CO3	1			2		1	2	3	3	2	2	3	3	2	3
				CO4	2	1	1				2	3	2	1	2	3	3	1	3
				CO5	1			2		1	2	3	3	2	2	3	3	2	3
				CO6	3	2	2				1			1	2	1			3
12			**Practical pertaining to theory paper VIIand VIII**	**CO1**	2	1	1				2	3	2	1	2	3	3	1	3
				CO2	1				1	2	2	3	2	1	2	3	3	1	3
				CO3	1			2		1	2	3	3	2	2	3	3	2	3
				CO4	2	1	1				2	3	2	1	2	3	3	1	3
				CO5	1			2		1	2	3	3	2	2	3	3	2	3
				CO6	3	2	2				1			1	2	1			3

13	2019-20	III	Enzymology (Paper-IX)	CO1	2	1	1		1	1	3		2	2	3	1	1	2		
				CO2	1	1	1		1	1	3		2	2	3	1	1	2		
				CO3	2	3	2		2	3	3	2	2	2	3	2	2	2	1	
				CO4	1	1	2	2	2	3	3	3	3	2	3	3	3	2	1	
				CO5	3	2	2				1			1	2	1				
				CO6	2			3						2				2		
14			Microbial & Food Technology (Paper-X)	CO1	2	1	1		1	1	3		2	2	3	1	1	2		
				CO2	1	1	1		1	1	3		2	2	3	1	1	2		
				CO3	2	3	2		2	3	3	2	2	2	3	2	2	2	1	
				CO4	1	1	2	2	2	3	3	3	3	2	3	3	3	2	1	
				CO5	3	2	2				1			1	2	1				
				CO6	2			3						2				2		
15			Environmental Bipotechnology (Paper XI)	CO1	1		1	2		3	1	2	2		3	1	1		1	
				CO2	1	1	2	3		3	2	2	3	1	3	2	2		2	
				CO3	2	2	1	3	1	3	1	3	3	1	2	3	2	1	2	
				CO4	1	1	2	3		3	1	3	3		3	2	2		2	
				CO5	3		2	2		3	2	3	3	2	3	2	3		2	
				CO6	3	1	2	2		3	1	2	2	1	3	2	3		2	
16			Commercial Biotechnology (Paper XII)	CO1	3	3	2		3	3	3		1	1	3	3	1		3	
				CO2	3	3	2		3	3	3		2	1	3	3	1		3	
				CO3	3	3	3	3	3	3	3	1	2	2	3	3	1	1	3	
				CO4	3	3	3	3	3	3	3	1	2	2	3	3	1	3	3	
				CO5	3	3	3	3	3	3	3	3	2	1	3	3	1	3	3	
				CO6	3	3	3	3	3	3	3	1	2	1	3	3	1	3	3	
17			Practical pertaining to theory paper IX and X	CO1	2	1	1				2	3	2	1	2	3	3	1	3	
				CO2	1				1	2	2	3	2	1	2	3	3	1	3	
				CO3	1			2		1	2	3	3	2	2	3	3	2	3	
				CO4	2	1	1				2	3	2	1	2	3	3	1	3	

				CO5	1			2		1	2	3	3	2	2	3	3	2	3
				CO6	3	2	2				1			1	2	1			3
18			**Practical pertaining to theory paper XI and XII**	**CO1**	2	1	1				2	3	2	1	2	3	3	1	3
				CO2	1				1	2	2	3	2	1	2	3	3	1	3
				CO3	1			2		1	2	3	3	2	2	3	3	2	3
				CO4	2	1	1				2	3	2	1	2	3	3	1	3
				CO5	1			2		1	2	3	3	2	2	3	3	2	3
				CO6	3	2	2				1			1	2	1			3
19	**2019-20**	**IV**	**Tissue & Cell culture Technology (Paper XIII)**	**CO1**	3	2									3				1
				CO2	2	2	3	3	2		3	3	1		2	3	3	2	2
				CO3	1	1			3	3	1	3	2	2	1	3	3	2	1
				CO4				2	3		2	3	2			2	1	2	1
				CO5				1	2										1
				CO6				1	2										2
20			**Research Methodology (Paper-XIV)**	**CO1**	1	3	3	1	2	1	3		2	3	3	2		3	3
				CO2	3	3	3	3	3	3	1		3	3	1	3		3	3
				CO3	3	3	3	1	3	3	3		3	3	1	3		3	3
				CO4	3	3	3	2	3	3	3		3	3	1	3		3	3
				CO5	3	3	3	2	3	1	2		1	3	2	3		1	3
				CO6	3	3	3	1	3	2	2		2	3	2	3		2	3
21			**Computers & Biostatistics (Paper XV)**	**CO1**	3	2	1	3	2			1	2		1	3	1		3
				CO2	3	1	1	1	1			1	3	1	2	3	3	1	
				CO3	3	1		3			1	1	1		1	1	2		3
				CO4	3			1			2	1	1		1	1	2		3
				CO5	3	2	3	3	2	2		2	3		1	1	2		3
				CO6	3	2	3	3	3	3	3	3	3		1	1	2		3
22			**Fundamentals of Bioinformatics (Paper**	**CO1**	1	1	1		1	1	3		2	2	3	1	1	2	
				CO2	2	1	1		1	1	3		2	2	3	1	1	2	

			XVI)	**CO3**	1	1	1		1	1	3		2	2	3	1	1	2	
				CO4	1	1	2	2	2	3	3	3	3	2	3	3	3	2	1
				CO5	3	2	2				1			1	2	1			
				CO6	3	1	2	2		3	1	2	2	1	3	2	3		2
23			**Practical pertaining to theory paper XIII and XIV**	**CO1**	2	1	1				2	3	2	1	2	3	3	1	3
				CO2	1				1	2	2	3	2	1	2	3	3	1	3
				CO3	1			2		1	2	3	3	2	2	3	3	2	3
				CO4	2	1	1				2	3	2	1	2	3	3	1	3
				CO5	1			2		1	2	3	3	2	2	3	3	2	3
				CO6	3	2	2				1			1	2	1			3
24			**Practical pertaining to theory paperXV and XVI**	**CO1**	1	1									1	1			
				CO2		2	1			1		2	2			1			
				CO3				2					1		2	3	1	1	
				CO4			1	2		1			3			1		1	
				CO5		1	1	1		1			2			2		1	
				CO6															

ATTAINMENT OF PO BY DIRECT METHOD

COURSE ATTAINMENT CALCULATION FOR ALL COURSES IN THE SEMESTER

AMAR SHAHEED BABA AJIT SINGH JUJHAR SINGH MEMORIAL COLLEGE, ROPAR PUNJAB

INTERNAL QUALITY ASSURANCE CELL

PROGRAMME: M.Sc Biotechnology	SEMESTER-II			DATE OF DECLARATION OF RESULT BY UNIVERSITY	

S. NO.	NAME OF STUDENT	CLASS R.NO.	UNIVERSITY R. NO.	REGISTRATION NO.	TCT Paper-XIII			Research method PaperXIV			Comp & Biostat paperXV			Fund. Of Bioinformatics PaperXVI			Practical V	Practical VI	TOTAL OF ALL COURSES	%age/CGPA	ATTAINMENT LEVEL
					Th	In	T(Th+In)	Th	In	T	Th	In	T	Th	In	T	T				
1	Bhawna	4001	1521	818-15-106	43	23	66	54	23	77	41	23	64	44	23	80	83	437	72.8	Level3
2	Kiranjit Kaur	4002	1530	814-14-282	46	23	69	44	25	69	40	25	65	38	23	87	84	435	72.5	Level3
3	Gurvinder Kaur	4003	1526	814-14-762	45	24	69	51	25	76	37	25	62	42	24	88	82	443	73.8	Level3
4	Shivi Jain	4004	1531	811-14-118	43	23	66	42	24	66	41	24	65	42	23	83	83	428	71.3	Level3
5	Kirandeep Kaur	4005	1525	814-14-284	39	24	63	41	23	64	41	23	64	45	24	82	67	409	68.2	Level3
6	Sumandeep Kaur	4006	1522	814-14-27	36	23	59	42	23	65	45	23	68	29	23	84	83	411	68.5	Level3
7	Ruchi Semwal	4007	1529	811-14-116	37	24	61	57	24	81	51	23	74	31	24	86	87	444	74	Level3
8	Rupinder	4008	1527	814-14-285	3	2	56	41	2	64	42	22	64	38	22	80	83	407	67.8	Level3

	Kaur				3	3			3										
9	Maninder Kaur	4009	1523	814-14-291	45	24	69	51	24	75	44	24	68	39	24	85	81	441	73.5	Level3
10	Parminder Kaur	4010	1524	814-14-290	40	23	63	46	24	70	49	24	73	27	23	86	81	423	70.5	Level3
11	Ramanpreet Kaur	4011	1528	814-14-271	26	20	46	41	21	62	35	21	56	27	21	75	65	352	58.7	level2
12	Dilpreet Singh	4051	1532	814-	27	22	49	44	22	66	40	22	62	45	22	79	65	388	64.7	level3
				Total of subjects			736			835			785			995	944			
				%			61.33%			69.58%			65.41%			82.91%	78.67%		69.68%	

Average PO attainment by indirect method= **69.68 %**

ATTAINMENT OF PO BY INDIRECT METHOD (EXIT SURVEY)

POs	DEGREE OF RELEVANCE					*% of PO	Level of attainment
	No. of 1	No. of 2	No. of 3	No. of 4	No. of 5		
1				13		80	level 3
2			1	11	1	80	level 3
3			1	11	1	80	level 3
4		2	3	6	2	72.31	level 3
5		3		7	3	75.38	level 3
6			3	8	2	78.46	level 3
7			1	9	3	83	level 3
8			1	10	2	81.54	level 3
9			1	8	4	84.62	level 3
10			1	7	5	86.15	level 3

Average PO attainment by indirect method= **80.14 %**

Total PO attainment (%) = (weightage: 80 %) X (Average attainment in direct method) + (weightage: 20 %) X (Average attainment in indirect method)

= (80%) X 69.68 + (20%) X 80.14

= **71.76%**

Level of Attainment = **Level 3**