Ch. Ranbir Singh University, Jind

Syllabus of the Examination
for
Post Graduate Programme
in
M.Sc. Biotechnology

as per NEP 2020
Curriculum and Credit Framework for Postgraduate Programme

With Multiple Entry-Exit, Internship and CBCS-LOCF
With effect from the session 2024-25 (in phased manner)

DEPARTMENT OF BIOTECHNOLOGY
FACULTY OF LIFE SCIENCES

CH. RANBIR SINGH UNIVERSITY, JIND

Ch. Ranbir Singh university, Jind

Scheme of Examination for Postgraduate Programme in M.Sc. Biotechnology
as per NEP 2020 Curriculum and Credit Framework for Postgraduate Programmes
(CBCS LOCF) with effect from the session 2024-25 (in phased manner)
Framework-2
Scheme-P

Semester	Course Type	Course Code	Nomenclature of course	Theory (T)/ Practical (P)	Credits		Contact hours per week L: Lecture P: Practical T: Tutorial				Internal Assessment Marks	End Term Examination Marks	Total Marks	Examination hours
						Total	L	T	P	Total				
1	CC-1	M24-BTY-101	Biomolecules	T	4	26	4	0	0	4	30	70	100	3
	CC-2	M24- BTY -102	Molecular Cell Biology	T	4		4	0	0	4	30	70	100	3
	CC-3	M24- BTY -103	Microbiology and Biotechniques	T	4		4	0	0	4	30	70	100	3
	CC-4	M24- BTY -104	Enzyme Technology	T	4		4	0	0	4	30	70	100	3
	PC-1	M24- BTY -105	Lab Course based on Biomolecules and Enzyme Technology	P	4		0	0	8	8	30	70	100	4
	PC-2	M24- BTY -106	Lab Course based on Molecular cell Biology; Microbiology and Biotechniques	P	4		0	0	8	8	30	70	100	4

	SEMINAR	M24- BTY -107	Seminar	S	2		0	0	0	2	0	50	50	1
2	CC-5	M24- BTY -201	Genetic Engineering	T	4	26	4	0	0	4	30	70	100	3
	CC-6	M24- BTY -202	Animal Cell & Tissue Culture	T	4		4	0	0	4	30	70	100	3
	CC-7	M24- BTY -203	Plant Cell & Tissue Culture	T	4		4	0	0	4	30	70	100	3
	CC-8	M24- BTY -204	Bioinformatics	T	4		4	0	0	4	30	70	100	3
	PC-3	M24- BTY -205	Lab Course based on Cell and Tissue Culture Technology	P	4		0	0	8	8	30	70	100	4
	PC-4	M24- BTY -206	Lab Course based on Genetic Engineering & Bioinformatics	P	4		0	0	8	8	30	70	100	4
	CHM	M24-CHM-201	**Constitutional, Human and Moral values, and IPR**	T	2		2	0	0	2	15	35	50	3
	Internship	M24-INT-200	An internship course of 4 Credits of 4-6 weeks duration during summer vacation after IInd semester is to be completed by every student. Internship can be either for enhancing the employability or for developing the research aptitude.								50	50	100	
3	CC-9	M24- BTY -301	Plant Biotechnology	T	4	26	4	0	0	4	30	70	100	3
	CC-10	M24- BTY -302	Microbial Biotechnology	T	4		4	0	0	4	30	70	100	3

	DEC-1	M24- BTY -303	Molecular Genetics	T	4		4	0	0	4	30	70	100	3
	DEC-2 **Any one**	M24- BTY -305	Immunology	T	4		4	0	0	4	30	70	100	3
		M24- BTY -306	Molecular Medicine and Diagnostics	T	4		4	0	0	4	30	70	100	3
	PC-5	M24- BTY -307	Lab Course based on Plant Biotechnology & Microbial Biotechnology	P	4		0	0	8	8	30	70	100	4
	PC-6	M24- BTY -308	Lab Course based on Molecular Genetics, Immunology/ Molecular Medicine and Diagnostics	P	4		0	0	8	8	30	70	100	4
	OEC	M24-OEC-303	Biotechnology and Human Welfare	T	2		2	0	0	2	15	35	50	3
4	CC-11	M24- BTY -401	Animal and Medical Biotechnology	T	4	26	4	0	0	4	30	70	100	3
	CC-12	M24- BTY -402	Environmental Biotechnology	T	4		4	0	0	4	30	70	100	3
	DEC-3	M24- BTY -403	Food Biotechnology	T	4		4	0	0	4	30	70	100	3

		M24- BTY -405	Genomics, Proteomics and Metabolomics	T	4	4	0	0	4	30	70	100	3
	DEC-4 **Any one**	M24- BTY -406	Biosafety, Bioethics and IPR matters of Biotechnology	T	4	4	0	0	4	30	70	100	3
	PC-7	M24- BTY -407	Lab Course based on Food and Environmental Biotechnology	P	4	0	0	8	8	30	70	100	4
	PC-8	M24- BTY -408	Lab Course based on Animal and Medical Biotechnology; Biosafety, Bioethics and IPR / Genomics, Proteomics and Metabolomics	P	4	0	0	8	8	30	70	100	4
	EEC	M24- BTY -409	Entrepreneurship and Diagnostic Lab Techniques	T	2	2	0	0	2	15	35	50	3
4	**OR DISSERTATION (NOTE: IF A CANDIDATE IS OFFERED DISSERTATION COURSE, THEN HE/SHE WILL ALSO STUDY CC-11, DEC-3, DEC-4 & EEC FROM ABOVE COURSES OF SEMESTER 4)**												
	Dissertation/ Project work	**M24-BTY-410**	**Dissertation/Project Work**	D	12	26	0	0	0	-	0	300	300	-
	TOTAL CREDITS					**108**	**TOTAL MARKS**						**2700**	

Programme Learning Outcomes (PLOs)
for PG Programme in M.Sc. Biotechnology as per NEP-2020

PLOs	Master Degree in Biotechnology
	After the completion of Master degree in Biotechnology the student will be able to:
PLO-1: Knowledge and understanding	Demonstrate the fundamental and advanced knowledge of the subject and understanding of recent developments and issues, including methods and techniques, related to the **Biotechnology**.
PLO-2: General Skills	Acquire the general skills required for performing and accomplishing the tasks as expected to be done by a skilled professional in the fields of **Biotechnology**.
PLO-3: Technical/ Professional Skills	Demonstrate the learning of advanced cognitive technical/professional skills required for completing the specialized tasks related to the profession and for conducting and analyzing the relevant research tasks in different domains of the **Biotechnology**.
PLO-4: Communication Skills	Effectively communicate the attained skills of the **Biotechnology** in well-structured and productive manner to the society at large.
PLO-5: Application of Knowledge and Skills	Apply the acquired knowledge and skills to the problems in the subject area, and to identify and analyze the issues where the attained knowledge and skills can be applied by carrying out research investigations to formulate evidence-based solutions to complex and unpredictable problems associated with the field of **Biotechnology** or otherwise.
PLO-6: Critical Thinking and Research Aptitude	Attain the capability of critical thinking in intra/inter-disciplinary areas of the **Biotechnology** enabling to formulate, synthesize, and articulate issues for designing of research proposals, testing hypotheses, and drawing inferences based on the analysis.
PLO-7: Constitutional, Humanistic, Moral Values and Ethics	Know constitutional, humanistic, moral and ethical values, and intellectual property rights to become a scholar/professional with ingrained values in expanding knowledge for the society, and to avoid unethical practices such as fabrication, falsification or misrepresentation of data or committing plagiarism.
PLO-8: Capabilities/Qualities and Mindset	To exercise personal responsibility for the outputs of own work as well as of group/team and for managing complex and challenging work(s) that requires new/strategic approaches.
PLO-9: Employability and Job-Ready Skills	Attain the knowledge and skills required for increasing employment potential, adapting to the future work and responding to the rapidly changing demands of the employers/industry/society with time.