



UTTARANCHAL UNIVERSITY

**Uttaranchal College of Applied & Life Sciences
Department of Biotechnology**

**Scheme of Examination
&
Detailed Syllabus**

For

**M.Sc. Biotechnology
(2- Year Programme)**

**Under Choice Based Credit System
(With effect from 2019-2020)**

Department of Biotechnology

Uttaranchal College of Applied & Life Sciences (UCALS)

Uttaranchal University, Dehradun



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Uttaranchal College of Applied & Life Sciences
Department of Biotechnology

M.Sc. Biotechnology (2 year course)

(As per new guidelines of UGC)

Evaluation Scheme

Semester – I									
Sr. No	Codes	Paper Title	L-T-P	Credit	Theory		Practical		Total
					End sem.	Sess.	End sem.	Sess.	
1.	TMBT 101	Cell Biology	4-0-0	4	60	40	-	-	100
2.	TMBT 102	Biological Tools & Radiotracer Techniques	4-0-0	4	60	40	-	-	100
3.	TMBT 103	Molecular Biology & Genetics	4-0-0	4	60	40	-	-	100
4.	TMBT 104	Biochemistry	4-0-0	4	60	40	-	-	100
5.	TMBT 105	Computational Biology	3-0-0	3	60	40	-	-	100
6.	PMBT 101	Cell Biology	0-0-2	1	-	-	60	40	100
7.	PMBT 102	Biological Tools & Radiotracer Techniques	0-0-4	2	-	-	60	40	100
8.	PMBT 103	Molecular Biology & Genetics	0-0-2	1	-	-	60	40	100
9.	PMBT 104	Biochemistry	0-0-4	2	-	-	60	40	100
10.	PMBT 105	Computational Biology	0-0-2	1	-	-	-	40	40
11.	ADP 106	Academic Activity	0-0-2	1	-	-	-	50	50
		Total	19-0-16	27					990



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Semester – II

Sr. No	Code	Paper Title	L-T-P	Credit	Theory		Practical		Total
					End sem.	Sess.	End sem.	Sess.	
1.	TMBT 201	Immunology	4-0-0	4	60	40	-	-	100
2.	TMBT 202	Microbiology	4-0-0	4	60	40	-	-	100
3.	TMBT 203	Enzymology	4-0-0	4	60	40	-	-	100
4.	TMBT 204	Essential Mathematics and Biostatistics	3-1-0	4	60	40	-	-	100
5.	TMBT 205	Cell and tissue culture	4-0-0	4	60	40	-	-	100
6.	PMBT 201	Immunology	0-0-2	1	-	-	60	40	100
7.	PMBT 202	Microbiology	0-0-2	1	-	-	60	40	100
8.	PMBT 203	Enzymology	0-0-2	1	-	-	60	40	100
9.	PMBT 205	Cell and tissue culture	0-0-4	2	-	-	60	40	100
10.	ADP 206	Seminar / training	0-0-2	1	-	-	-	50	50
		Total	19-1-12	26					950



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Semester – III

Sr. No	Code	Paper Title	L-T-P	Credit	Theory		Practical		Total
					End sem.	Sess.	End sem.	Sess.	
1.	TMBT 301	Bioinformatics and Intellectual Property Rights	4-0-0	4	60	40	-	-	100
2.	TMBT 302	Recombinant DNA Technology	4-0-0	4	60	40	-	-	100
3.	TMBT 303	Genomics & Proteomics	4-0-0	4	60	40	-	-	100
4.	TMBT 304	Elective-1	4-0-0	4	60	40	-	-	100
5.	PMBT 301	Bioinformatics and Intellectual Property Rights	0-0-2	1			60	40	100
6.	PMBT 302	Recombinant DNA Technology	0-0-4	2			60	40	100
7.	PMBT 303	Genomics & Proteomics	0-0-2	1			60	40	100
8.	PMBT 304	Elective-1	0-0-2	1			-	40	40
9.	ADP 305	Industrial Training & Report Submission	0-0-2	1	-	-	-	50	50
10.	ADP 306	Academic Activity / SWAYAM / NPTEL	0-0-2	1	-	-	-	50	50
		Total	16-0-14	23					840



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Semester – IV

Sr. No.	Code	Paper Title	L-T-P	Credit	Theory		Practical		Total
					End sem.	Sess.	End sem.	Sess.	
1.	TMBT 401	Environmental Biotechnology & Bioprocess Engineering	4-0-0	4	60	40	-	-	100
2.	TMBT 402	Elective-2	4-0-0	4	60	40	-	-	100
3.	PMBT 401	Environmental Biotechnology & Bioprocess Engineering	0-0-4	2	-	-	60	40	100
4.	PMBT 402	Elective-2	0-0-2	1	-	-	60	40	100
5.	ADP 403	Dissertation	0-0-16	8	-	-	200	100	300
		Total	8-0-22	19					700
Grand Total (I-IV Semester)				95					3480



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Elective-1

1. Research Methodology: Tools & Techniques
2. Bio – Entrepreneurship and Bio-business management
3. Biomedical Technology

Elective-2

1. Basics of Forensic science
2. Agricultural Biotechnology
3. Pharmaceutical Biotechnology