

Outline of the syllabus for B.Sc. in Biotechnology (Royal School of Bio-Sciences)

1 ST SEMESTER					
COMPONENT	COURSE CODE	COURSE TITLE	LEVEL	CREDIT	L-T-P
Major (Core)	BTC152M101	Biochemistry	100	3	2-1-0
	BTC152M112	Practical on Biochemistry	100	3	0-0-6
Minor *	BTC152N101	Biotechnology and Human Welfare	100	3	3-0-0
Interdisciplinary (IDC)	IKS992K101	Indian Knowledge System – I	100	3	3-0-0
Ability Enhancement Course (AEC)	CEN982A101	Communicative English – I	100	1	1-0-0
	BHS982A102	BHS – I	100	1	1-0-0
Skill Enhancement Course (SEC)	BTC152S111	Compost Preparation and Applications	100	3	0-0-6
Value Added Course (VAC) **	VAC992V1---	To be chosen from a pool of courses	100	3	
SWAYAM				3/ 4	
TOTAL CREDIT FOR 1 ST SEMESTER				20+3/4	
2 ND SEMESTER					
COMPONENT	COURSE CODE	COURSE TITLE	LEVEL	CREDIT	L-T-P
Major (Core)	BTC152M201	Microbiology	100	2	2-0-0
	BTC152M211	Practical in Microbiology	100	1	0-0-2
Major (Core)	BTC152M202	Cell Biology	100	2	2-0-0
	BTC152M212	Practical in Cell Biology	100	1	0-0-2
Minor	BTC152N201	Basic Instrumentation in Biology	100	3	3-0-0
IDC	IKS992K201	Indian Knowledge System – II	100	3	3-0-0
AEC	CEN982A201	Communicative English – II	100	1	1-0-0
	BHS982A202	BHS – II	100	1	1-0-0
SEC	BTC152S211	Biochemical Analysis of Food	100	3	0-0-6
VAC	VAC992V2---	To be chosen from a pool of courses	100	3	
SWAYAM				3/ 4	
TOTAL CREDIT FOR 2 ND SEMESTER				20+3/4	
Exit 1 – UG Certificate in Biotechnology (with 40 credits + a vocational course of 4 credits in summer break)					
3 RD SEMESTER					
COMPONENT	COURSE CODE	COURSE TITLE	LEVEL	CREDIT	L-T-P
Major (Core)	BTC152M301	Genetics	200	3	2-1-0
	BTC152M311	Practical in Genetics	200	1	0-0-2
Major (Core)	BTC152M302	Biophysical Chemistry	200	4	3-1-0
Minor	BTC152N301	Introduction to IPR	200	4	3-1-0
IDC #	BTC152I301	Health and Hygiene	200	3	3-0-0
AEC	CEN982A301	Communicative English – III	200	1	1-0-0
	BHS982A302	BHS – III	200	1	1-0-0
SEC	BTC152S311	Clinical Biochemistry	200	3	0-0-6
SWAYAM				3/ 4	
TOTAL CREDIT 3 RD SEMESTER				20+3/4	
4 TH SEMESTER					
COMPONENT	COURSE CODE	COURSE TITLE	LEVEL	CREDIT	L-T-P
Major (Core)	BTC152M401	Molecular Biology	200	3	2-1-0
	BTC152M411	Practical in Molecular Biology	200	1	0-0-2
Major (Core)	BTC152M402	Immunology	200	3	2-1-0
	BTC152M412	Practical in Immunology	200	1	0-0-2
Major (Core)	BTC152M403	Bioethics, Biosafety and IPR	200	4	3-1-0
Minor	BTC152N401	Biofertilizer and Its Application	200	3	3-0-0
	BTC152N402	Food Biotechnology	200	3	3-0-0
AEC	CEN982A401	Communicative English – IV	200	1	1-0-0

Outline of the syllabus for B.Sc. in Biotechnology (Royal School of Bio-Sciences)

	BHS982A402	BHS – IV	200	1	1-0-0
SWAYAM				3/ 4	
TOTAL CREDIT 4TH SEMESTER				20+3/4	
Exit 2 – UG Diploma in Biotechnology (with 80 credits + a vocational course of 4 credits in summer break of 2nd year)					
5TH SEMESTER					
COMPONENT	COURSE CODE	COURSE TITLE	LEVEL	CREDIT	L-T-P
Major (Core)	BTC152M501	Genomics and Proteomics	300	4	4-0-0
	BTC152M502	Plant and Animal Biotechnology	300	4	4-0-0
	BTC152M513	Practical – V	300	4	0-0-8
Minor	BTC152N501	Basics of Molecular Biology	300	4	3-1-0
INTERNSHIP			300	4	
TOTAL CREDIT FOR 5TH SEMESTER				20	
6TH SEMESTER					
COMPONENT	COURSE CODE	COURSE TITLE	LEVEL	CREDIT	L-T-P
Major (Core)	BTC152M601	Genetic Engineering	300	4	4-0-0
	BTC152M602	Bioinformatics and Biostatistics	300	4	4-0-0
	BTC152M603	Bioprocess Engineering	300	4	4-0-0
	BTC152M614	Practical – VI	300	4	0-0-8
Minor	BTC152N601	Entrepreneurship Development	300	4	3-1-0
TOTAL CREDIT FOR 6TH SEMESTER				20	
Course completion Option 1 – UG Degree (B.Sc.) in Biotechnology (with 120 credits)					
7TH SEMESTER					
COMPONENT	COURSE CODE	COURSE TITLE	LEVEL	CREDIT	L-T-P
Major (Core)	BTC152M701	Environmental Biotechnology	400	4	3-1-0
	BTC152M702	Medical Biotechnology	400	4	3-1-0
	BTC152M703	Plant and Animal Physiology	400	4	3-1-0
	BTC152M714	Practical – VII	400	4	0-0-8
Minor	BTC152N701	Pharmaceutical Biotechnology	400	4	3-1-0
TOTAL CREDIT 7TH SEMESTER				20	
8TH SEMESTER					
COMPONENT	COURSE CODE	COURSE TITLE	LEVEL	CREDIT	L-T-P
Major (Core)	BTC152M801	Research Methodology & Scientific Writing	400	4	3-1-0
Minor	BTC152N801	Ecology & Environment Management	400	4	3-1-0
Project/Dissertation	BTC152M821	Students with ≥ 75% till the 6th semester	400	12	0-0-24
(Major courses for the rest of the students in lieu of Project/ Dissertation)					
Major (Core)	BTC152M802	Developmental Biology	400	4	3-1-0
	BTC152M803	Ecosystem Degradation and Intervention	400	4	3-1-0
	BTC152M804	Techniques in Molecular Biology	400	4	3-1-0
TOTAL CREDIT 8TH SEMESTER				20	
Course completion Option 2 – B.Sc. (Honours) in Biotechnology (with 160 credits)					
§ Course completion Option 3 – B.Sc. (Honours with Research) in Biotechnology (with 160 credits)					

* Students must choose a **minor course** outside their major course (a separate department) and are expected to **continue with the same department** in subsequent semesters. As such the minor papers offered by Department of Biotechnology are for students from other departments only.

** Students must choose a **VAC** outside their major course (a separate department) and are free to **choose a course offered by the same or different departments** in subsequent semesters.

Students must choose an **IDC** outside their major course (a separate department).

§ This option is available only to the students securing ≥ 75% (cumulative) till the 6th semester.