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	CEN982A101	Communicative English – I	100	1	1-0-0
Course (AEC)	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 SE	EMESTER	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 SE		20+3/4	
Exit 1 – UG Certifica	te in Biotechnolo	ogy (with 40 credits + a vocational course of 4	credits in	summer b	reak)
COMPONENT		3RD SEMESTER		ODEDUT	LED
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 BHS – III	200	1	1-0-0
	BHS982A302		200	1	1-0-0
SEC	BTC152S311	Clinical Biochemistry	200	3	0-0-6
SWAYAM			MECTED	3/4	
		TOTAL CREDIT 3 RD SE	IMESTER	20+3/4	
COMPONENT	COURSE CODE	4 TH SEMESTER COURSE TITLE	LEVEL	CREDIT	L-T-P
	BTC152M401	Molecular Biology	200	3	2-1-P
Major (Core)	BTC152M401 BTC152M411	Practical in Molecular Biology	200	3	0-0-2
	BTC152M411 BTC152M402	Immunology	200	3	2-1-0
Major (Core)	BTC152M402 BTC152M412	Practical in Immunology	200	3	0-0-2
Major (Coro)	BTC152M412 BTC152M403	Bioethics, Biosafety and IPR	200	4	3-1-0
Major (Core)	DICI521403	Dioeulics, Diosalety allu IPR	200	4	3-1-0
	BTC152N101	Riofortilizor and Its Application	200	2	200
Minor	BTC152N401	Biofertilizer and Its Application	200	3	3-0-0
Minor	BTC152N401 BTC152N402 CEN982A401	Biofertilizer and Its Application Food Biotechnology Communicative English – IV	200 200 200	3 3 1	3-0-0 3-0-0 1-0-0

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

	BHS982A402	B.Sc. in Biotechnology (Royal Sc BHS – IV	200	1	1-0-0
SWAYAM				3/4	
		TOTAL CREDIT 4 TH S	EMESTER	20+3/4	
Exit 2 – UG Diploma i	n Biotechnology	(with 80 credits + a vocational course of 4 cre	edits in su	mmer brea	k of 2 nd
		year) 5 TH 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
	INT	ERNSHIP	300	4	
		TOTAL CREDIT FOR 5 TH S	EMESTER	20	
		6 th SEMESTER			
COMPONENT	COURSE CODE	COURSE TITLE	LEVEL	CREDIT	L-T-F
	BTC152M601	Genetic Engineering	300	4	4-0-0
Major (Core)	BTC152M602	Bioinformatics and Biostatistics	300	4	4-0-(
	BTC152M603	Bioprocess Engineering	300	4	4-0-(
	BTC152M614	Practical – VI	300	4	0-0-8
Minor	BTC152N601	Entrepreneurship Development	300	4	3-1-(
		TOTAL CREDIT FOR 6 TH S	EMESTER	20	
Course	completion Optio	on 1 – UG Degree (B.Sc.) in Biotechnology (wi	th 120 cre	dits)	
		7 TH SEMESTER			
		/ ··· SEMESTER			
COMPONENT	COURSE CODE	COURSE TITLE	LEVEL	CREDIT	L-T-F
COMPONENT	COURSE CODE BTC152M701		LEVEL 400	CREDIT 4	
		COURSE TITLE			3-1-(
COMPONENT Major (Core)	BTC152M701	COURSE TITLE Environmental Biotechnology	400	4	3-1-(3-1-(
	BTC152M701 BTC152M702	COURSE TITLE Environmental Biotechnology Medical Biotechnology	400 400	4	3-1-0 3-1-0 3-1-0
	BTC152M701 BTC152M702 BTC152M703	COURSE TITLE Environmental Biotechnology Medical Biotechnology Plant and Animal Physiology	400 400 400	4 4 4	3-1-0 3-1-0 3-1-0 0-0-8
Major (Core)	BTC152M701 BTC152M702 BTC152M703 BTC152M714	COURSE TITLEEnvironmental BiotechnologyMedical BiotechnologyPlant and Animal PhysiologyPractical – VII	400 400 400 400 400	4 4 4 4	3-1-0 3-1-0 3-1-0 0-0-8
Major (Core)	BTC152M701 BTC152M702 BTC152M703 BTC152M714	COURSE TITLEEnvironmental BiotechnologyMedical BiotechnologyPlant and Animal PhysiologyPractical – VIIPharmaceutical Biotechnology	400 400 400 400 400	4 4 4 4 4 4	3-1-0 3-1-0 3-1-0 0-0-8
Major (Core)	BTC152M701 BTC152M702 BTC152M703 BTC152M714	COURSE TITLE Environmental Biotechnology Medical Biotechnology Plant and Animal Physiology Practical – VII Pharmaceutical Biotechnology TOTAL CREDIT 7 TH S	400 400 400 400 400	4 4 4 4 4 4	3-1-(3-1-(3-1-(0-0-8 3-1-(
Major (Core) Minor	BTC152M701 BTC152M702 BTC152M703 BTC152M714 BTC152N701	COURSE TITLE Environmental Biotechnology Medical Biotechnology Plant and Animal Physiology Practical – VII Pharmaceutical Biotechnology TOTAL CREDIT 7 TH S 8 TH SEMESTER	400 400 400 400 400 EMESTER	4 4 4 4 4 20	3-1-(3-1-(0-0-{ 3-1-(0-0-{ L-T-F
Major (Core) Minor COMPONENT	BTC152M701 BTC152M702 BTC152M703 BTC152M714 BTC152N701	COURSE TITLE Environmental Biotechnology Medical Biotechnology Plant and Animal Physiology Practical – VII Pharmaceutical Biotechnology TOTAL CREDIT 7 TH S 8 TH SEMESTER COURSE TITLE	400 400 400 400 400 EMESTER	4 4 4 4 20 CREDIT	3-1-(3-1-(0-0-8 3-1-(U U L-T-F 3-1-(
Major (Core) Minor COMPONENT Major (Core) Minor	BTC152M701 BTC152M702 BTC152M703 BTC152M714 BTC152N701 COURSE CODE BTC152M801	COURSE TITLE Environmental Biotechnology Medical Biotechnology Plant and Animal Physiology Practical – VII Pharmaceutical Biotechnology TOTAL CREDIT 7 TH S 8 TH SEMESTER COURSE TITLE Research Methodology & Scientific Writing	400 400 400 400 400 400 400 400 400 400	4 4 4 4 20 CREDIT 4	3-1-(3-1-(0-0-{ 3-1-(
Major (Core) Minor COMPONENT Major (Core) Minor Project/Dissertation	BTC152M701 BTC152M702 BTC152M703 BTC152M714 BTC152N701 COURSE CODE BTC152M801 BTC152N801 BTC152N801	COURSE TITLE Environmental Biotechnology Medical Biotechnology Plant and Animal Physiology Practical – VII Pharmaceutical Biotechnology TOTAL CREDIT 7 TH S 8 TH SEMESTER COURSE TITLE Research Methodology & Scientific Writing Ecology & Environment Management	400 400 400 400 400 400 400 400 400 400 400 400 400 400 400 400 400	4 4 4 4 4 20 CREDIT 4 4	L-T-F 3-1-(3-1-(0-0-8 3-1-(3-1-(3-1-(0-0-2
Major (Core) Minor COMPONENT Major (Core) Minor Project/Dissertation	BTC152M701 BTC152M702 BTC152M703 BTC152M714 BTC152N701 COURSE CODE BTC152M801 BTC152N801 BTC152N801	COURSE TITLE Environmental Biotechnology Medical Biotechnology Plant and Animal Physiology Practical – VII Pharmaceutical Biotechnology TOTAL CREDIT 7 TH S 8 TH SEMESTER COURSE TITLE Research Methodology & Scientific Writing Ecology & Environment Management Students with ≥ 75% till the 6 th semester	400 400 400 400 400 400 400 400 400 400 400 400 400 400 400 400 400	4 4 4 4 4 20 CREDIT 4 4	3-1-(3-1-(0-0-{ 3-1-(
Major (Core) Minor COMPONENT Major (Core) Minor Project/Dissertation	BTC152M701 BTC152M702 BTC152M703 BTC152M714 BTC152N701 COURSE CODE BTC152M801 BTC152N801 BTC152M821 Major courses for	COURSE TITLE Environmental Biotechnology Medical Biotechnology Plant and Animal Physiology Practical – VII Pharmaceutical Biotechnology TOTAL CREDIT 7™ S 8™ SEMESTER COURSE TITLE Research Methodology & Scientific Writing Ecology & Environment Management Students with ≥ 75% till the 6 th semester the rest of the students in lieu of Project/ Diss	400 400 400 400 400 400 400 400 400 400 400 400 400 400 400 400 400 400 400	4 4 4 4 20 CREDIT 4 4 12	3-1-(3-1-(0-0-{ 3-1-(3-1-(3-1-(0-0-2 3-1-(
Major (Core) Minor COMPONENT Major (Core) Minor Project/Dissertation (N	BTC152M701 BTC152M702 BTC152M703 BTC152M714 BTC152N701 COURSE CODE BTC152M801 BTC152N801 BTC152N801 BTC152M821 Major courses for BTC152M802	COURSE TITLE Environmental Biotechnology Medical Biotechnology Plant and Animal Physiology Practical – VII Pharmaceutical Biotechnology TOTAL CREDIT 7 TH S 8 TH SEMESTER COURSE TITLE Research Methodology & Scientific Writing Ecology & Environment Management Students with ≥ 75% till the 6 th semester the rest of the students in lieu of Project/ Diss Developmental Biology	400 400	4 4 4 20 CREDIT 4 4 12	3-1-(3-1-(0-0-{ 3-1-(3-1-(3-1-(0-0-2

* 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 \geq 75% (cumulative) till the 6th semester.