STRUCTURE OF THE SYLLABUS FOR 4 YEAR UG PROGRAMME

ROYAL SCHOOL OF BIO SCIENCES

B.Sc. Biotechnology (Honours/Honours with Research)

1ST SEMESTER			
COMPONENT	**COURSE CODE**	**COURSE TITLE**	**CREDIT**
Major (Core)	BTC152M101	Biochemistry	3
	BTC152M112	Practical on Biochemistry	3
Minor *	BTC152N101	Biotechnology and Human Welfare	3
Interdisciplinary (IDC)	IKS992K101	Indian Knowledge System – I	3
Ability Enhancement Course (AEC)	CEN982A101	Communicative English – I	1
	BHS982A102	BHS – I	1
Skill Enhancement Course (SEC)	BTC152S111	Compost Preparation and Applications	3
Value Added Course (VAC) **	VAC992V1---	To be chosen from a pool of courses	3
SWAYAM			3/ 4
		TOTAL CREDIT FOR 1ST SEMESTER	**20+3/4**
2ND SEMESTER			
COMPONENT	**COURSE CODE**	**COURSE TITLE**	**CREDIT**
Major (Core)	BTC152M201	Microbiology	2
	BTC152M211	Practical in Microbiology	1
Major (Core)	BTC152M202	Cell Biology	2
	BTC152M212	Practical in Cell Biology	1
Minor	BTC152N201	Basic Instrumentation in Biology	3
IDC	IKS992K201	Indian Knowledge System – II	3
AEC	CEN982A201	Communicative English – II	1
	BHS982A202	BHS – II	1
SEC	BTC152S211	Biochemical Analysis of Food	3
VAC	VAC992V2---	To be chosen from a pool of courses	3
SWAYAM			3/ 4
		TOTAL CREDIT FOR 2ND SEMESTER	**20+3/4**
3RD SEMESTER			
COMPONENT	**COURSE CODE**	**COURSE TITLE**	**CREDIT**
Major (Core)	BTC152M301	Genetics	3

	BTC152M311	Practical in Genetics	1
Major (Core)	BTC152M302	Biophysical Chemistry	4
Minor	BTC152N301	Introduction to IPR	4
IDC #	BTC152I301	Health and Hygiene	3
AEC	CEN982A301	Communicative English – III	1
	BHS982A302	BHS – III	1
SEC	BTC152S311	Clinical Biochemistry	3
SWAYAM			3/ 4
		TOTAL CREDIT 3RD SEMESTER	**20+3/4**
4TH SEMESTER			
COMPONENT	**COURSE CODE**	**COURSE TITLE**	**CREDIT**
Major (Core)	BTC152M401	Molecular Biology	3
	BTC152M411	Practical in Molecular Biology	1
Major (Core)	BTC152M402	Immunology	3
	BTC152M412	Practical in Immunology	1
Major (Core)	BTC152M403	Bioethics, Biosafety and IPR	4
Minor	BTC152N401	Biofertilizer and Its Application	3
	BTC152N402	Food Biotechnology	3
AEC	CEN982A401	Communicative English – IV	1
	BHS982A402	BHS – IV	1
SWAYAM			3/ 4
		TOTAL CREDIT 4TH SEMESTER	**20+3/4**
5TH SEMESTER			
COMPONENT	**COURSE CODE**	**COURSE TITLE**	**CREDIT**
Major (Core)	BTC152M501	Genomics and Proteomics	4
	BTC152M502	Plant and Animal Biotechnology	4
	BTC152M513	Practical – V φ	4
Minor	BTC152N501	Basics of Molecular Biology	4
		INTERNSHIP	4
		TOTAL CREDIT FOR 5TH SEMESTER	**20**
6TH SEMESTER			
COMPONENT	**COURSE CODE**	**COURSE TITLE**	**CREDIT**
Major (Core)	BTC152M601	Genetic Engineering	4
	BTC152M602	Bioinformatics and Biostatistics	4

	BTC152M603	Bioprocess Engineering	4
	BTC152M614	Practical – VI $^{\Psi}$	4
Minor	BTC152N601	Entrepreneurship Development	4
		TOTAL CREDIT FOR 6TH SEMESTER	**20**
7TH SEMESTER			
COMPONENT	**COURSE CODE**	**COURSE TITLE**	**CREDIT**
Major (Core)	BTC152M701	Environmental Biotechnology	4
	BTC152M702	Medical Biotechnology	4
	BTC152M703	Plant and Animal Physiology	4
	BTC152M714	Practical – VII $^{\omega}$	4
Minor	BTC152N701	Pharmaceutical Biotechnology	4
		TOTAL CREDIT 7TH SEMESTER	**20**
8TH SEMESTER			
COMPONENT	**COURSE CODE**	**COURSE TITLE**	**CREDIT**
Major (Core)	BTC152M801	Research Methodology & Scientific Writing	4
Minor	BTC152N801	Ecology & Environment Management	4
Project/Dissertation §	**BTC152M821**	Dissertation (Students with ≥ 75% till the 6th semester)	12
(Major courses for the rest of the students in lieu of Project/ Dissertation)			
Major (Core)	BTC152M802	Developmental Biology	4
	BTC152M803	Ecosystem Degradation and Intervention	4
	BTC152M804	Techniques in Molecular Biology	4
		TOTAL CREDIT 8TH SEMESTER	**20**
Course completion – B.Sc. (Honours) in Biotechnology (with 160 credits)			
Course completion – B.Sc. (Honours with Research) in Biotechnology (with 160 credits)			

STRUCTURE OF THE SYLLABUS FOR 2 YEAR UG PROGRAMME

ROYAL SCHOOL OF BIO SCIENCES

M.Sc. Biotechnology

1ST SEMESTER		
COURSE CODE	**COURSE TITLE**	**CREDIT**
BTC154C101	Biochemistry	3
BTC154C102	Microbiology	3
BTC154C103	Cell Biology	3

BTC154C104	Genetics	3
BTC154C115	Practical – I (A) *	4
BTC154C116	Practical – I (B) *	4
SWAYAM		3/ 4
	TOTAL CREDIT FOR 1ST SEMESTER	**20+3/4**
	2ND SEMESTER	
COURSE CODE	**COURSE TITLE**	**CREDIT**
BTC154C201	Molecular Biology	3
BTC154C202	Immunology	3
BTC154C203	Bioinformatics and Biostatistics	3
BTC154C204	Environmental Biotechnology	3
BTC154C215	Practical – II (A) #	4
BTC154C216	Practical – II (B) #	4
SWAYAM		3/4
	TOTAL CREDIT FOR 2ND SEMESTER	**20+3/4**
	TOTAL CREDIT FOR 1ST YEAR = 40 + 6/ 8	
	3RD SEMESTER	
COURSE CODE	**COURSE TITLE**	**CREDIT**
BTC154C301	Bioprocess Technology	4
BTC154C302	Analytical techniques	4
BTC154C303	IPR, Biosafety, Bioethics and Research Methodology	4
BTC154C304	Genetic Engineering	4
BTC154C315	Practical – III θ	4
	TOTAL CREDIT 3RD SEMESTER	**20**
	OR 3RD SEMESTER (For students with 3rd and 4th Semester Research)	
BTC154R321	**RESEARCH PROJECT – PHASE 1**	**20**
	4TH SEMESTER	
COURSE CODE	**COURSE TITLE**	**CREDIT**
BTC154C421	**Dissertation (Students with research in 4th Sem)**	**20**
BTC154C401	Plant and Animal Biotechnology	4
BTC154C402	Biophysical Chemistry	4
BTC154C403	Genomics and Proteomics	4
BTC154C404	Food Biotechnology	4
BTC154C415	Practical – IV §	4
	TOTAL CREDIT 4TH SEMESTER	**20**
BTC154R421	**RESEARCH PROJECT – PHASE 2**	**20**

**** Practical – I (A) will include practical components from the theory papers 'Biochemistry' and 'Microbiology'***

Practical – I (B) will include practical components from the theory papers 'Cell Biology' and 'Genetics'

 # Practical – II (A) will include practical components from the theory papers 'Molecular Biology' and 'Immunology'

Practical – II (B) will include practical components from the theory papers 'Bioinformatics and Biostatistics' and 'Environmental Biotechnology'

θ Practical – III will include practical components from the theory papers 'Bioprocess Technology', 'Analytical Techniques' and 'Genetic Engineering'

§ Practical – IV will include practical components from the theory papers 'Plant and Animal Biotechnology', 'Biophysical Chemistry', 'Genomics and Proteomics' and 'Food Biotechnology'