Program Name	Catalog	Catalog Course Name	Course Type	Batch 2020	Batch 2021	Change in T-Code	Change	Change	Change	Change	Add on course	Changes Yes:
	Course		Туре	2020		Yes / No	course/N		evaluatio	instructio		Revised
	COOL						ature	У	n	n method		No: Not Revised
M.Sc. (Biotechnology)	GEN002	Project	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)			Elective	Base PS	No Change	No						No
M.Sc. (Biotechnology)	T0100	Research Publication	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)			Elective		Added	Yes						Yes
M.Sc. (Biotechnology)	T1656	Intellectual Property Rights	Elective		Added	Yes						Yes
M.Sc. (Biotechnology)		Integrated Disaster Management	Core	Base PS	No Change	No						No
M.Sc. (Biotechnology)		Intellectual Property Rights	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)		Practicals in Biochemistry	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)	TH4060	Practicals in Microbiology	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)		Practicals in Immunology and Virology	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)		Stem Cell Biology	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)	TH4063	Bioinformatics	Elective	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)	TH4064	Genetic Analysis	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)		Genomics and Proteomics	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)		Practicals in Industrial and Clinical biotechnology	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)		Practical in Recombinant DNA Technology	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)	-	Molecular Immunology	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)	TH4069	Research Methodology and Biostatistics	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)		Virology	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)		Practicals in Animal Tissue Culture	Core	Base PS	Dropped	Yes						Yes
M,Sc. (Biotechnology)		Microbiology	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)	_	Advanced Molecular Biology	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)		Environmental Biotechnology	Elective	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)	TH4075	Practicals in Molecular Biology	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)	TH4076	Biochemistry	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)		Clinical Biochemistry	Elective	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)	TH4089	Recombinant DNA Technology	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)	TH4090	Cell Biology	Core	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)		Bioprocess Engineering	Elective	Base PS	Dropped	Yes						Yes
M.Sc. (Biotechnology)	TH4096	Advanced Genomics and Proteomics	Elective		Added	Yes						Yes
M.Sc. (Biotechnology)	TH4097	Advanced Immunology	Core		Added	Yes						Yes
M.Sc. (Biotechnology)	-	Advanced Molecular Biology	Core		Added	Yes						Yes
M.Sc. (Biotechnology)	TH4099	Biochemistry	Core		Added	Yes					1	Yes
M.Sc. (Biotechnology)		Bioprocess Engineering	Elective		Added	Yes						Yes
M.Sc. (Biotechnology)		Cell Biology	Core		Added	Yes						Yes
M.Sc. (Biotechnology)		Environmental Biotechnology	Elective		Added	Yes						Yes
M.Sc. (Biotechnology)		Genetic Analysis	Core		Added	Yes						Yes
M.Sc. (Biotechnology)		Genetic engineering	Core		Added	Yes						Yes
M.Sc. (Biotechnology)	-	Genomics, Proteomics and Bioinformatics	Core		Added	Yes			-			Yes

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Symbiosis School of Biological Sciences:

Gram: Lavale, Pune - 412 115.

1,000		T	Elective	Added	Yes	Yes
VI.Sc. (Biotechnology)		Introduction to Laboratory Animal Science			Yes	Yes
M.Sc. (Biotechnology)	TH4107	Microbiology	Core	Added		 Yes
M.Sc. (Biotechnology)		Practicals in Animal Tissue Culture	Core	Added	Yes	Yes
M.Sc. (Biotechnology)		Practicals in Bioanalytical Techniques	Elective	Added	Yes	
M.Sc. (Biotechnology)		Practicals in Biochemistry	Core	Added	Yes	Yes
M.Sc. (Biotechnology)		Practicals in Bioinformatics	Core	Added	Yes	Yes
M.Sc. (Biotechnology)		Practicals in Immunology and Virology	Elective	Added	Yes	Yes
M.Sc. (Biotechnology)		Practicals in Microbiology	Core	Added	Yes	Yes
M.Sc. (Biotechnology)		Practicals in Molecular Biology	Core	Added	Yes	Yes
M.Sc. (Biotechnology)		Practicals in Recombinant DNA Technology	Core	Added	Yes	Yes
M.Sc. (Biotechnology)		Research Methodology and Biostatistics	Core	Added	Yes	Yes
M.Sc. (Biotechnology)		Stem Cell Biology	Elective	Added	Yes	Yes
M.Sc. (Biotechnology)		Virology	Elective	Added	Yes	Yes
M.Sc. (Biotechnology)		Certificate in COVID-19 Care for the Community	Core	Added	Yes	Yes
4						

DIRECTOR
Symbiosis School of Biological Sciences
Gram: Lavale, Pune - 412 115.

_{॥वसुधी} हुद्धकम्॥ SSBS

SYMBIOSIS SCHOOL OF BIOLOGICAL SCIENCES

Symbiosis International (Deemed University)

(Established under section 3 of the UCT Act, 1956)

Re-accredited by NAAC with 'A' grade (3.54/4) | Awarded Category - I by UGC

Founder: Prof. Dr. S.B. Mujumdar, M.Sc., Ph.D. (Awarded Padma Bhushan and Padma Shri by President of India)



......

Name of the institute: Symbiosis School of Biological Sciences

Name of the program: Master of Science (Biotechnology)

Academic Year: 2021-22

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Sr. No.	Program		Page number
1	MSc (Biotechnology)	Approval of programme structure of batch 2021-2023	1
2	MSc (Biotechnology)	Program structure 2020-21	2-8
3	MSc (Biotechnology)	Program structure 2021-22	9-13

Director,

Symbiosis School of Biological Sciences

Hill Base Campus, Gram Lavale, Tal: Mulshi, Pune 412 115, Maharashtra, India. | Tel: +91-20-2811 6496/ 6193 6496 Email: info@ssbs.edu.in | Web: ssbs.edu.in

SYMBIOSIS INTERNATIONAL (DEEMED UNIVERSITY)

(Established under Section 3 of the UGC Act, 1956)

Re-accredited by NAAC with 'A' grade (3.58/4) | Awarded Category - I by UGC

SIU/ACAD/2022/1888 Date: 13/04/2022

To The Director

Symbiosis School of Biological Sciences, Pune

Subject: Revised Programme Structure.

Dear Sir/Madam,

Reference to SIU letter no SIU/U-110(SSBS,Pune)/2021/3119 dated 16/08/2021 regarding approval of programme structure of batch 2021-2023. The details of the revision are as follows:

Academic Year: 2021-2022

Sr.No. Programme Batch

1 Master of Science (Biotechnology) (Revision 02) 2021-2023

The revised programme structure supersedes the previously approved programme structures referred in the above letters.

You are requested to download the same using your Login Credentials the link is :

http://eduwiz.intechsolutionspune.in/eduwiz/login.html

Path: Academics->Catalogue->Programme Structure-> View Course Structure -> Select Institute -> Select Academic Year -> Select Programme -> Select Batch -> Select Revision-> Show Course Structure -> Print Programme Structure.

Thanking you.

Sincerely,

Dr. Pravin Dange Head- Academics

Copy to: Controller of Examinations, SIU

1 Of 1



1.	OBJECTIVE	2. Impart skill sets to3. Enable students wbiotechnology.4. Empower studen	4. Empower students with an ability to translate biotechnology research skill set to provide sustainable solutions to societal issues.							
2.	DURATION (IN MONTHS)	24 (Full Time)								
3.	INTAKE	40								
4.	RESERVATION	I.Within the sanctioned intake	a) SC (In Percentage)			c) Differently abled (In Percentage)				
			15		7.5	3				
		II.Over and above the sanctioned intake	a) Kashmiri Migra (In Seats)	,		onal Students age)				
			2			15				
5.	ELIGIBILITY	Sciences OR Gradua in Biotechnology fro Importance and mus	om any recognized U	Biotec Iniversi nimum	chnology/ Gra ity/ Institution of 50% mark	duate of Technology of National as or equivalent grade				
6.	SELECTION PROCEDURE	Written Test / Person	nal Interaction							
7.	MEDIUM OF INSTRUCTION	English								
8.	PROGRAMME PATTERN	Semester								
9.	COURSE & SPECIALIZATION	As per Annexure A								
10.	FEE		Academic Fee p.a	In	stitute Depos	sit Total				
		M.Sc.	(Biotechnology)							
		Indian Students	210000		20000	230000				
		International Students (USD equivalent to INR)	315000		20000	335000				
		M.Sc. Biotechnol	ogy (By Research)	lst Yea	ır					



		Indian Students	210000	20000	230000				
		International Students (USD equivalent to INR)	315000	20000	335000				
		M.Sc. Biotechnolog	gy (By Research) 2nd	l Year					
		Indian Students	420000	0	420000				
		International Students (USD equivalent to INR)	630000	0	630000				
11.	ASSESSMENT	All internal courses will have 100% component as internal evaluation at the institute level. All external courses will have 60% internal component and 40% component as external (University) examination.							
12.	STANDARD OF PASSING	The assessment of the student for each examination is done, based on relative performance. Maximum Grade Point (GP) is 10 corresponding to O (Oustanding). For all courses, a student is required to pass both internal and external examination separately with a minimum Grade Point of 4.000 corresponding to Grade P. Students securing less than 40% absolute marks in each head of passing will be declared FAIL. The University awards a degree to the student who has achieved a minimum CGPA of 4.000 out of maximum of 10 CGPA for the program.							
13.	AWARD OF DEGREE/ DIPLOMA/ CERTIFICATE	Students opting for S (Biotechnology) at the consideration the per minimum 4.00 CGP. Students opting for S	tream-A of the programe end of semester IV of formance of all semesta out of 10 CGPA. tream-B of the program specific mention of "	mme will be awarded examination after taking ter examinations after mme will be awarded By Research" on the control of the con	Master of Science ag into obtaining Master of Science legree certificate				

14. NATURE WISE DISTRIBUTION OF CREDITS

William Was a state of the stat										
Semester	Generic Core	Generic Elective	Specialization Core	Specialization Elective	Open Elective	Audit	Total			
			Strear	n A						
1	20	0	0	0	0	1*	20			
2	20	0	0	0	0	1*	20			
3	18	2	0	0	0	1*	20			
4	20	0	0	0	0	0	20			
Total	78	2	0	0	0	0	80			
			Strear	n B						
1	20	0	0	0	0	1*	20			
2	20	0	0	0	0	1*	20			
3	20	0	0	0	0	1*	20			
4	20	0	0	0	0	0	20			

16/08/2021 (R-01)

Total	80	0	0	0	0	0	80

^{*} Satisfactory completion of the non letter grade courses 'Integrated Disaster Management' and 'Research Publication' and 'Certificate in COVID-19 Care for the Community' is mandatory for award of degree.

The revised programme structure supersedes the previously approved programme structure dated 21/05/2021 for the programme.

This Programme Structure is aligned with the norms laid down by the University and is approved by the Academic Council.

Hereafter changes (if any) which conform to the policy on "Curriculum Development and Review" would be permissible, subject to revision of the Programme Structure, following the specified processes.

Head - Academics

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Annexure A

beleutating 50 f	ears of Excellence		Annexure A				
Catalog Course Code	Course Code	Course Title	Specialization	Credit	Internal Marks	External Marks	Total Marks
		Sei	mester : 1				
		Generic	Core Courses		_		
TH4099	0403420101	Biochemistry		3	90	60	150
TH4097	0403420102	Advanced Immunology		3	90	60	150
TH4098		Advanced Molecular Biology		3	90	60	150
TH4107	0403420104	Microbiology		3	90	60	150
TH4104	0403420105	Genetic Engineering		3	90	60	150
TH4116	0403420106	Research Methodology and Biostatistics		3	90	60	150
TH4103	0403420107	20107 Genetic analysis		2	60	40	100
TH4272 0403420108			0	0	0	Non Letter Grade	
	•		Total	20	600	400	1000
		Sei	mester : 2				l
		Generic	Core Courses				
TH4113	0403420201	Practicals in microbiology		3	90	60	150
TH4110	0403420202	Practicals in Biochemistry		3	90	60	150
TH4101	0403420203	Cell Biology		3	90	60	150
TH4114	0403420204	Practicals in molecular biology		3	90	60	150
TH4108	0403420205	Practicals in Animal Tissue Culture		2	60	40	100
TH4115	0403420206	Practicals in Recombinant DNA Technology		2	60	40	100
TH4111	0403420207	Practicals in Bioinformatics		2	60	40	100
TH4105	0403420208	Genomics, Proteomics and Bioinformatics		2	60	40	100
T4005	0403420209	Integrated Disaster Management *		0	0	0	Non Letter Grade
			Total	20	600	400	1000
		Sei	mester : 3		•	,	!
		St	ream - A Core Courses				
T0100	0403420301	Research Publication *		0	0	0	Non Letter Grade
TH4109	0403420302	Practicals in Bioanalytical Techniques		3	90	60	150
TH4118	0403420303	Virology		3	90	60	150
TH4112	0403420304	Practicals in Immunology and Virology		3	90	60	150
TH4100	0403420305	Bioprocess engineering		3	90	60	150
TH4106	0403420306	Introduction to Laboratory Animal Science		2	60	40	100

SIU

16/08/2021 (R-01)



Annexure A

Catalog Course Code	Course Code	Course Title	Specialization	Credit	Internal Marks	External Marks	Total Marks		
TH4117	0403420307	Stem Cell Biology		2	60	40	100		
T1656	0403420308	Intellectual Property Rights		2	60	40	100		
		Total	Required Credits	18	540	360	900		
		_	tream - A Elective Courses						
TH4096	0403420309	Advanced Genomics and Proteomics		2	60	40	100		
TH4102	0403420310	Environmental Biotechnology		2	60	40	100		
	Total Required Credits 2 60 40 100								
			B (By Research) Core Courses		_				
T0100	0403420301	Research Publication *		0	0	0	Non Letter Grade		
T4820	0403420311	Project (Part I)		20	600	400	1000		
		Total	Required Credits	20	600	400	1000		
		Se	mester : 4	•	•	•			
		_	tream - A Core Courses						
T4820	0403420401	Project		20	600	400	1000		
		Total	Required Credits	20	600	400	1000		
			B (By Research) Core Courses						
T4820	0403420402	Project (Part II)		20	600	400	1000		
		Total	Required Credits	20	600	400	1000		



Semester	Internal Credits	External Credits	Total Credits	Total Marks
	•			
Semester 1	0	20	20	1000
Semester 2	0	20	20	1000
Semester 3	0	20	20	1000
Semester 4	0	20	20	1000
Total	0	80	80	4000



1.	OBJECTIVE	 Provide expertise in laboratory-based techniques. Impart skill sets to formulate and execute independent research project. Enable students with skill sets to carve a career as a researcher in the field of biotechnology. Empower students with an ability to translate biotechnology research skill set to provide sustainable solutions to societal issues. 						
2.	DURATION (IN MONTHS)	24 (Full Time)						
3.	INTAKE	40						
4.	RESERVATION	I.Within the sanctioned intake	a) SC (In Percentage)	<i>'</i>		c) Differently abled (In Percentage)		
			15		7.5	3		
		II.Over and above the sanctioned intake	a) Kashmiri Migra (In Seats)	nts	b) Internatio (In Percenta	ional Students age)		
			2		15			
5.	ELIGIBILITY	Sciences OR Gradua in Biotechnology fro Importance with a m	ence/ Health Science ate of Engineering in om any recognized U hinimum of 50% mar Caste/ Scheduled Tr	Biotecl niversit ks or ec	hnology/ Grac cy/ Institution	duate of Technology		
6.	SELECTION PROCEDURE	Written Test / Person	nal Interaction	·				
7.	MEDIUM OF INSTRUCTION	English						
8.	PROGRAMME PATTERN	Semester						
9.	COURSE & SPECIALIZATION	As per Annexure A						
10.	FEE		Academic Fee p.a	Ins	stitute Depos	it Total		
	T							
		Indian Students	210000		20000	230000		
		International Students (USD equivalent to INR)	315000		20000	335000		
		M.Sc. Biotechnol	ogy (By Research) 1	st Year	r			



		Indian Students	210000	20000	230000			
		International Students (USD equivalent to INR)	315000	20000	335000			
		M.Sc. Biotechnolog	gy (By Research) 2nd	l Year				
		Indian Students	420000	0	420000			
		International Students (USD equivalent to INR)	630000	0	630000			
11.	ASSESSMENT	All internal courses will have 100% component as internal evaluation at the institute level. All external courses will have 60% internal component and 40% component as external (University) examination.						
12.	STANDARD OF PASSING	The assessment of the student for each examination is done, based on relative performance. Maximum Grade Point (GP) is 10 corresponding to O (Oustanding). For all courses, a student is required to pass both internal and external examination separately with a minimum Grade Point of 4.000 corresponding to Grade P. Students securing less than 40% absolute marks in each head of passing will be declared FAIL. The University awards a degree to the student who has achieved a minimum CGPA of 4.000 out of maximum of 10 CGPA for the program.						
13.	AWARD OF DEGREE/ DIPLOMA/ CERTIFICATE	Students opting for Stream-A of the programme will be awarded Master of Science (Biotechnology) at the end of semester IV examination after taking into consideration the performance of all semester examinations after obtaining minimum 4.00 CGPA out of 10 CGPA. Students opting for Stream-B of the programme will be awarded Master of Science (Biotechnology) with specific mention of "By Research" on the degree certificate after taking into consideration the performance of all semester examinations after obtaining minimum 4.00 CGPA out of 10 CGPA.						

14. NATURE WISE DISTRIBUTION OF CREDITS

Semester	Generic Core	Generic Elective	Specialization Core	Specialization Elective	Open Elective	Audit	Total
1	20	0	0	0	0	0	20
2	20	0	0	0	0	1*	20
3	15	5	0	0	0	1*	20
4	20	0	0	0	0	0	20
Total	75	5	0	0	0	0	80

^{*} Satisfactory completion of the non letter- grade courses 'Integrated Disaster Management' and 'Research Publication' is mandatory for award of degree.

Programme Structure is approved by the Academic Council subject to its norms & conditions. Any provision in the Programme Structure which violates the basic rules & regulations is deemed to be termed "Null & Void".

Head-Academics

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Annexure A

Catalog Course Code	Course Code	Course Title	Specialization	Credit	Internal Marks	External Marks	Total Marks
		Se	mester : 1	•			
		Generio	Core Courses				
TH4076	0403420101	Biochemistry		3	90	60	150
TH4072	0403420102	Microbiology		3	90	60	150
TH4073	0403420103	Advanced Molecular Biology		3	90	60	150
TH4069	0403420104	Research Methodology and Biostatistics		3	90	60	150
TH4089	0403420105	Recombinant DNA Technology		3	90	60	150
TH4090	0403420106	Cell Biology		3	90	60	150
TH4064	0403420107	Genetic Analysis		2	60	40	100
			Total	20	600	400	1000
		Se	mester : 2				
		Generio	Core Courses				
TH4059	0403420201	Practicals in Biochemistry		3	90	60	150
TH4060	0403420202	Practicals in Microbiology		3	90	60	150
TH4071	0403420203	Practicals in Animal Tissue Culture		3	90	60	150
TH4075	0403420204	Practicals in Molecular Biology		3	90	60	150
TH4067	0403420205	Practical in Recombinant DNA Technology		3	90	60	150
TH4068	0403420206	Molecular Immunology		3	90	60	150
TH4065	0403420207	Genomics and Proteomics		2	60	40	100
T4005	0403420208	Integrated Disaster Management *		0	0	0	Non Letter Grade
			Total	20	600	400	1000
		Se	mester : 3	•	•	•	•
		_	TREAM-A				
	T		Core Courses				
T4703	0403420301	Intellectual Property Rights		3	90	60	150
	0403420302	Practicals in Immunology and Virology		3	90	60	150
TH4062		Stem cell biology		3	90	60	150
TH4070	0403420304	0,		3	90	60	150
TH4066	0403420305	Practicals in Industrial and Clinical Biotechnology		3	90	60	150
T0100	0403420306	Research Publication *		0	0	0	Non Letter Grade
			Total	15	450	300	750
			·B (By Research) : Core Courses				
T0100	0403420306	Research Publication *		0	0	0	Non Letter Grade



Annexure A

Catalog Course Code	Course Code	Course Title	Specialization	Credit	Internal Marks	External Marks	Total Marks
T4820	0403420307	Project (Part I)		20	600	400	1000
			Total	20	600	400	1000
		_	IREAM-A tive Courses Group				
TH4063	0403420308	Bioinformatics		2	60	40	100
TH4074	0403420309	Environmental Biotechnology		2	60	40	100
		Total I	Required Credits	2	60	40	100
		•	TREAM-A tive Courses Group	_	_		
TH4088	0403420311	Clinical Biochemistry		3	90	60	150
TH4091	0403420310	Bioprocess Engineering		3	90	60	150
		Total I	Required Credits	3	90	60	150
		Se	mester : 4				
			TREAM-A Core Courses				
T4820	0403420401	Project		20	600	400	1000
			Total	20	600	400	1000
			B (By Research) Core Courses				
T4820	0403420402	Project (Part II)		20	600	400	1000
			Total	20	600	400	1000



Semester	Internal Credits	External Credits	Total Credits	Total Marks
Semester1	0	20	20	1000
Semester2	0	20	20	1000
Semester3	0	20	20	1000
Semester4	0	20	20	1000
Total	0	80	80	4000