

**Symbiosis School of Biological Sciences, Pune**  
**Master of Science (Biotechnology)**  
**Programme Structure 2024-26**

1.	OBJECTIVE	1. Provide expertise in laboratory-based techniques. 2. Impart skill sets to formulate and execute independent research project. 3. Enable students with skill sets to carve a career as a researcher in the field of biotechnology. 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	50			
4.	RESERVATION	I.Within the sanctioned intake	a) SC (In Percentage)	b) ST (In Percentage)	c) Differently abled (In Percentage)
			15	7.5	3
		II.Over and above the sanctioned intake	a) Kashmiri Migrants (In Seats)	b) International Students (In Percentage)	
			2	20	
5.	ELIGIBILITY	Graduate in Life Sciences/ Health Sciences/ Biotechnology/ any other Biological Sciences OR Graduate of Engineering in Biotechnology/ Graduate of Technology in Biotechnology from any recognized University/ Institution of National Importance and must have obtained a minimum of 50% marks or equivalent grade (45% or equivalent grade for Scheduled Caste/ Scheduled Tribes) at graduation			
6.	SELECTION PROCEDURE	Written Test / Personal Interaction			
7.	MEDIUM OF INSTRUCTION	English			
8.	PROGRAMME PATTERN	Semester			
9.	COURSE & SPECIALISATION	As per Annexure A Stream-A : M.Sc. Biotechnology Stream-B : M.Sc. Biotechnology (By Research) Stream-C : Dual Degree option to enroll with the University of Adelaide, Australia or Aston University, United Kingdom			
10.	FEE		Academic Fee p.a	Institute Deposit	Total
M.Sc. (Biotechnology)					
	Indian Students (Amount in INR)		250000	20000	270000
	International Students	NRI/ PIO/ OCI Category (Amount in US\$)	4700	275	4975

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		Foreign National Category (Amount in US\$)	1950	275	2225
M.Sc. Biotechnology (By Research) 1st Year					
	Indian Students (Amount in INR)		250000	20000	270000
	International Students	NRI/ PIO/ OCI Category (Amount in US\$)	4700	275	4975
		Foreign National Category (Amount in US\$)	1950	275	2225
M.Sc. Biotechnology (By Research) 2nd Year					
	Indian Students (Amount in INR)		480000		480000
	International Students	NRI/ PIO/ OCI Category (Amount in US\$)	9400	0	9400
		Foreign National Category (Amount in US\$)	3900	0	3900
DUAL DEGREE					
	Indian Students (Amount in INR)		1st Year 500000	20000	520000
DUAL DEGREE 2nd Year					
To be paid to the University of Adelaide or Aston University based on their norms.					
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 (Outstanding). 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	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. Students opting for Stream-C of the programme will be awarded Master of Science (Biotechnology) after successfully completing the mapped credits at the respective university abroad and after taking into consideration the performance of all semester examinations after obtaining minimum 4.00 CGPA out of 10 CGPA.						
14. CLASSIFICATION OF CREDITS								
Semester	Generic Core	Generic Elective	Specialisation Core	Specialisation Elective	Open Elective	Mandatory Non-Credit Course/s	Non-Letter Grade Audit Course/s	Total
Stream A								
1	20	0	0	0	0	0	As per the student's choice	20
2	20	0	0	0	0	2		20
3	20	0	0	0	0	0		20
4	20	0	0	0	0	0		20
Total	80	0	0	0	0	0		80
Stream B								
1	20	0	0	0	0	0	As per the student's choice	20
2	20	0	0	0	0	2		20
3	20	0	0	0	0	0		20
4	20	0	0	0	0	0		20
Total	80	0	0	0	0	0		80
Stream C								
1	20	0	0	0	0	0	As per the student's choice	20
2	20	0	0	0	0	2		20
3	Courses delivered as per the syllabus and structure of M.Sc. Biotechnology (Biomedical) of University of Adelaide or M.Sc. Stem Cells and Regenerative Medicine of Aston University or M. Res. Bioscience from Aston University. Please refer to the annexure for course and credit mapping							
4								
Courses delivered as per the syllabus and structure of M.Sc. Biotechnology (Biomedical) of University of Adelaide or M.Sc. Stem Cells and Regenerative Medicine of Aston University or M. Res. Bioscience from Aston University. Please refer to the annexure for course and credit mapping								
The revised programme structure supersedes the previously approved programme structure dated 13/12/2024 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.

Director - Academics

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**Annexure A**

Catalog Course Code	Course Code	Course Title	Specialisation	Credit	Continuous Assessment	Term End Examination	Total Marks
<b>Semester : 1</b>							
<b>Generic Core Courses</b>							
TH4099	0403420101	Biochemistry		3	90	60	150
TH4110	0403420102	Practicals in Biochemistry		3	90	60	150
TH4098	0403420103	Advanced Molecular Biology		3	90	60	150
TH4107	0403420104	Microbiology		3	90	60	150
TH4114	0403420105	Practicals in Molecular Biology		3	90	60	150
TH4588	0403420106	Research Methodology and Biostatistics		3	90	60	150
TH4584	0403420107	Genetic Analysis		2	60	40	100
<b>Total</b>				<b>20</b>	<b>600</b>	<b>400</b>	<b>1000</b>
<b>Semester : 2</b>							
<b>Generic Core Courses</b>							
TH4113	0403420201	Practicals in Microbiology		3	90	60	150
TH4589	0403420202	Advanced Immunology		3	90	60	150
TH4101	0403420203	Cell Biology		3	90	60	150
TH4586	0403420204	Genetic Engineering		3	90	60	150
TH4108	0403420205	Practicals in Animal Tissue Culture		2	60	40	100
TH4587	0403420206	Practicals in Recombinant DNA Technology		2	60	40	100
TH4585	0403420207	Practicals in Bioinformatics		2	60	40	100
TH4583	0403420208	Bioinformatics		2	60	40	100
TH4788	0403420209	Health and Wellness Module I		0	0	0	Mandatory Non-Credit Course
TH4789	0403420210	Health and Wellness Module II		0	0	0	Mandatory Non-Credit Course
<b>Total</b>				<b>20</b>	<b>600</b>	<b>400</b>	<b>1000</b>
<b>Semester : 3</b>							
<b>Stream - A</b>							
<b>Generic Core Courses</b>							
TH4100	0403420301	Bioprocess Engineering		3	90	60	150
TH4109	0403420302	Practicals in Bioanalytical Techniques		3	90	60	150
TH4112	0403420303	Practicals in Immunology and Virology		3	90	60	150
TH4118	0403420304	Virology		3	90	60	150

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Catalog Course Code	Course Code	Course Title	Specialisation	Credit	Continuous Assessment	Term End Examination	Total Marks
T1656	0403420305	Intellectual Property Rights		2	60	40	100
TH4106	0403420306	Introduction to Laboratory Animal Science		2	60	40	100
TH4117	0403420307	Stem Cell Biology		2	60	40	100
<b>Total Required Credits</b>				<b>18</b>	<b>540</b>	<b>360</b>	<b>900</b>
<b>Generic Elective Course Group Stream - A (Choose any one course)</b>							
TH4582	0403420308	Genomics and Proteomics		2	60	40	100
TH4102	0403420309	Environmental Biotechnology		2	60	40	100
<b>Total Required Credits</b>				<b>2</b>	<b>60</b>	<b>40</b>	<b>100</b>
<b>Stream-B Generic Core Course (By Research)</b>							
T4820	0403420310	Project (Part I)		20	600	400	1000
<b>Total Required Credits</b>				<b>20</b>	<b>600</b>	<b>400</b>	<b>1000</b>
<b>Stream-C (Dual Degree)</b>							
Note: Courses delivered as per the syllabus and structure of M.Sc. Biotechnology (Biomedical) degree from the University of Adelaide or M.Sc. Stem cells and Regenerative Medicine from Aston University or M. Res. Bioscience from Aston University. Students will take courses to fulfill the credit requirements of our programme.							
<b>Semester : 4</b>							
<b>Generic Elective Course Group Stream - A (Choose any one course)</b>							
T4820	0403420401	Project		20	600	400	1000
T4920	0403420402	Internship		20	600	400	1000
<b>Total Required Credits</b>				<b>20</b>	<b>600</b>	<b>400</b>	<b>1000</b>
<b>Stream - B Generic Core Course (By Research)</b>							
T4820	0403420403	Project (Part II)		20	600	400	1000
<b>Total Required Credits</b>				<b>20</b>	<b>600</b>	<b>400</b>	<b>1000</b>
<b>Stream-C (Dual Degree)</b>							
Courses delivered as per the syllabus and structure of M.Sc. Biotechnology (Biomedical) degree from the University of Adelaide or M.Sc. Stem cells and Regenerative Medicine from Aston University or M. Res. Bioscience from Aston University. Students will take courses to fulfill the credit requirements of our programme.							

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Semester	Continuous Assessment	Term End Examination	Total Credits	Total Marks
<b>STREAM-A</b>				
Semester 1	0	20	20	1000
Semester 2	0	20	20	1000
Semester 3	0	20	20	1000
Semester 4	0	20	20	1000
<b>Total</b>	<b>0</b>	<b>80</b>	<b>80</b>	<b>4000</b>
<b>STREAM-B</b>				
Semester 1	0	20	20	1000
Semester 2	0	20	20	1000
Semester 3	0	20	20	1000
Semester 4	0	20	20	1000
<b>Total</b>	<b>0</b>	<b>80</b>	<b>80</b>	<b>4000</b>
<b>STREAM-C</b>				
Semester 1	0	20	20	1000
Semester 2	0	20	20	1000
Semester 3	Courses delivered as per the syllabus and structure of M.Sc. Biotechnology (Biomedical) of University of Adelaide or M.Sc. Stem Cells and Regenerative Medicine of Aston University or M.Res. Bioscience from Aston University. Please refer to the annexure for course and credit mapping.			
Semester 4				