

Symbiosis Institute of Computer Studies and Research, Pune
Master of Science (Computer Applications)
Programme Structure 2025-27

1.	OBJECTIVE	This Programme will equip students with knowledge highly relevant to emerging technologies. This Programme aims to provide a comprehensive framework for understanding by integrating theoretical foundations with extensive practical work in the labs and hands-on experience. The Programme offers following areas of specialisations: I. Software Development II. Cyber Security III. Data Science					
2.	DURATION (IN MONTHS)	24 (Full Time)					
3.	INTAKE	30					
4.	RESERVATION	I. Within the sanctioned intake	a) SC (In Percentage)	b) ST (In Percentage)	c) Differently abled (In Percentage)	d) Defence (In Percentage)	
			15	7.5	3	0	
		II. Over and above the sanctioned intake	a) Kashmiri Migrants (In Seats)		b) International Students (In Percentage)		
			2		25		
5.	ELIGIBILITY	Graduate from any recognised University/ Institution of National Importance with a minimum of 50% marks or equivalent grade (45% marks or equivalent grade for Scheduled Caste / Scheduled Tribes).					
6.	SELECTION PROCEDURE	Selection based on Group Exercise and Personal Interaction					
7.	MEDIUM OF INSTRUCTION	English					
8.	PROGRAMME PATTERN	Semester					
9.	COURSE & SPECIALISATION	As per Annexure A List of Specialisations Offered (Choose any one) 1. Software Development 2. Cyber Security 3. Data Science					
10.	FEE		Academic Fee p.a	Institute Deposit	Total		

Symbiosis Institute of Computer Studies and Research, Pune
Master of Science (Computer Applications)
Programme Structure 2025-27

	Indian Students (Amount in INR)		452000	20000	472000			
	International Students	NRI/ PIO/ OCI Category (Amount in US\$)	8400	275	8675			
		Foreign National Category (Amount in US\$)	1950	275	2225			
11. ASSESSMENT	The courses will have 60% Continuous Assessment and 40% Term End [University] examination however, some courses (not more than 30% of the total programme credits) may have 100% Continuous Assessment.							
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 Continuous Assessment and Term End examinations separately with a minimum Grade Point of 4 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 out of maximum of 10 CGPA for the programme.							
13. AWARD OF DEGREE	Master of Science (Computer Applications) will be awarded at the end of semester 4 examination by 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-Credit Audit Course/s	Total
Common								
1	23	0	0	0	0	1 *	As per the student's choice	23
2	11	0	8	6	0	0		25
3	6	0	8	6	0	1 *		20
4	12	0	0	0	0	0		12
Total	52	0	16	12	0	0		80
* Satisfactory completion of non credit courses 'Health and Wellness' and 'Vasudhaiva Kutumbakam' is mandatory for award of degree.								
Additional Note: #Health and Wellness Module I and Module II will be conducted during the semesters mentioned in the programme structure. However, the course will be listed on the students' grade sheets as "Health and Wellness" in the semester in which the institute's course code is officially assigned.								

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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Symbiosis Institute of Computer Studies and Research, Pune
Master of Science (Computer Applications)
Programme Structure 2025-27

Annexure A

Catalog Course Code	Course Code	Course Title	Specialisation	Credit	Continuous Assessment	Term End Examination	Total Marks
Semester : 1							
Generic Core Courses							
T3575	0301420101	Software Engineering (Agile Practices)		4	120	80	200
TE7958	0301420102	Computer Networks		3	90	60	150
TE7960	0301420103	Data Structures		3	90	60	150
T3580	0301420104	Relational Database Management System		3	90	60	150
T3016	0301420105	PHP		2	60	40	100
T7674	0301420106	Cyber Security		2	60	40	100
T3213	0301420107	Introduction to Operating System		2	60	40	100
T3198	0301420108	Introduction to Python		2	60	40	100
T2843	0301420109	Research Methodology		2	60	40	100
SMC001	0301420110	Vasudhaiva Kutumbakam *		0	0	0	Mandatory Non-Credit Course
Total				23	690	460	1150
Semester : 2							
Generic Core Courses							
T3012	0301420201	Java SE		4	200	0	200
T3492	0301420202	Internet of Things		2	60	40	100
F0003	0301420203	Flexi-Credit Course		3	150	0	150
T3702	0301420204	Dissertation		2	100	0	100
TH4788		Health and Wellness Module I #		0	0	0	Mandatory Non-Credit Course
Total				11	510	40	550
Specialisation Core Courses : Software Development							
T3114	0301420205	Object Oriented Analysis Design	Software Development	4	120	80	200
T3120	0301420206	Software Project Management	Software Development	4	120	80	200
Total				8	240	160	400
Specialisation Elective : Software Development (Choose any Two courses)							
T3356	0301420207	NOSQL Databases	Software Development	3	90	60	150
T3281	0301420208	Data Warehousing	Software Development	3	90	60	150

Symbiosis Institute of Computer Studies and Research, Pune
Master of Science (Computer Applications)
Programme Structure 2025-27

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Catalog Course Code	Course Code	Course Title	Specialisation	Credit	Continuous Assessment	Term End Examination	Total Marks
T3018	0301420209	R Programming	Software Development	3	90	60	150
T3003	0301420210	Android Technologies	Software Development	3	90	60	150
TE7549	0301420211	Cloud Computing and Distributed Systems	Software Development	3	90	60	150
T3124	0301420212	Software Verification and Validation	Software Development	3	90	60	150
T3406	0301420213	Foundation Web Technology	Software Development	3	90	60	150
T2064	0301420214	Entrepreneurship and Global Capitalism	Software Development	3	90	60	150
Total Required Credits				6	180	120	300
Specialisation Core Courses : Cyber Security							
T3022	0301420215	Cryptography	Cyber Security	3	90	60	150
T3034	0301420216	Database and Application Security	Cyber Security	3	90	60	150
T3617	0301420217	Security Standards	Cyber Security	2	60	40	100
Total				8	240	160	400
Specialisation Elective : Cyber Security (Choose any Two courses)							
TE7549	0301420211	Cloud Computing and Distributed Systems	Cyber Security	3	90	60	150
T2064	0301420214	Entrepreneurship and Global Capitalism	Cyber Security	3	90	60	150
T3401	0301420218	Fundamentals of Web Security	Cyber Security	3	90	60	150
T3050	0301420219	IS Risk Analysis and System Audit	Cyber Security	3	90	60	150
T3033	0301420220	Cyber Security-A Case Study Approach	Cyber Security	3	90	60	150
T3066	0301420221	Network Security	Cyber Security	3	90	60	150
Total Required Credits				6	180	120	300
Specialisation Core Courses : Data Science							
T3120	0301420206	Software Project Management	Data Science	4	120	80	200
T3576	0301420222	Computation Methods	Data Science	2	60	40	100
T3577	0301420223	Data Analysis Using Python	Data Science	2	60	40	100
Total				8	240	160	400
Specialization Elective : Data Science (Choose any Two courses)							
T3356	0301420207	NOSQL Databases	Data Science	3	90	60	150

Symbiosis Institute of Computer Studies and Research, Pune
Master of Science (Computer Applications)
Programme Structure 2025-27

Annexure A

Catalog Course Code	Course Code	Course Title	Specialisation	Credit	Continuous Assessment	Term End Examination	Total Marks
T3281	0301420208	Data Warehousing	Data Science	3	90	60	150
T3018	0301420209	R Programming	Data Science	3	90	60	150
TE7549	0301420211	Cloud Computing and Distributed Systems	Data Science	3	90	60	150
T2064	0301420214	Entrepreneurship and Global Capitalism	Data Science	3	90	60	150
T3567	0301420224	Data Analysis and Visualization	Data Science	3	90	60	150
T3268	0301420225	Fuzzy Logic	Data Science	3	90	60	150
Total Required Credits				6	180	120	300
Semester : 3							
Generic Core Courses							
T3344	0301420301	DevOps		2	60	40	100
F0002	0301420302	Flexi-Credit Course		2	100	0	100
T3802	0301420303	Pilot Project		2	100	0	100
TH4789		Health and Wellness Module II #		0	0	0	Mandatory Non-Credit Course
SMC003	0301420304	Health and Wellness *		0	0	0	Mandatory Non-Credit Course
Total				6	260	40	300
Specialisation Core Courses : Software Development							
T3293	0301420305	Software Architectures	Software Development	4	120	80	200
T3536	0301420306	Web UI and Content Management	Software Development	4	120	80	200
Total				8	240	160	400
Specialization Elective : Software Development (Choose any Two course)							
T3111	0301420307	Data Mining and Algorithms	Software Development	3	90	60	150
T3122	0301420308	Software Quality Models	Software Development	3	90	60	150
F0003	0301420309	Flexi-Credit Course	Software Development	3	150	0	150
T3697	0301420310	Advanced Programming in Python	Software Development	3	90	60	150
T3271	0301420311	Systems Programming	Software Development	3	90	60	150
T3008	0301420312	Cloud Programming using Web Services	Software Development	3	90	60	150

Symbiosis Institute of Computer Studies and Research, Pune
Master of Science (Computer Applications)
Programme Structure 2025-27

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Catalog Course Code	Course Code	Course Title	Specialisation	Credit	Continuous Assessment	Term End Examination	Total Marks
Total Required Credits				6	180	120	300
Specialisation Core Courses : Cyber Security							
T3054	0301420313	Vulnerability Assessment and Penetration Testing	Cyber Security	4	120	80	200
T3044	0301420314	Security Management Practices	Cyber Security	2	60	40	100
T3618	0301420315	IT Audit and Risk Management	Cyber Security	2	60	40	100
Total				8	240	160	400
Specialization Elective: Cyber Security (Choose any Two course)							
T3032	0301420316	Computer Forensics - Detection and Prevention of IT Frauds	Cyber Security	3	90	60	150
T3543	0301420317	Virtualization and Security	Cyber Security	3	90	60	150
T3540	0301420318	Identity and Access Management	Cyber Security	3	90	60	150
F0003	0301420319	Flexi-Credit Course	Cyber Security	3	150	0	150
T3332	0301420320	Software Defined Networking	Cyber Security	3	90	60	150
TE7618	0301420321	Cyber Physical System	Cyber Security	3	90	60	150
Total Required Credits				6	180	120	300
Specialisation Core Courses : Data Science							
T3578	0301420322	Image Processing	Data Science	4	120	80	200
T3579	0301420323	Machine Learning Algorithms	Data Science	4	120	80	200
Total				8	240	160	400
Specialization Elective : Data Science (Choose any Two course)							
T3008	0301420312	Cloud Programming using Web Services	Data Science	3	90	60	150
T3448	0301420324	Text Analytics	Data Science	3	90	60	150
T3569	0301420325	Data Science for IOT	Data Science	3	90	60	150
T3566	0301420326	Artificial Neural Network and Deep Learning	Data Science	3	90	60	150
T3568	0301420327	Natural Language Processing	Data Science	3	90	60	150
F0003	0301420328	Flexi-Credit Course	Data Science	3	150	0	150
T3462	0301420329	Cyber Security Analytics	Data Science	3	90	60	150
Total Required Credits				6	180	120	300
Semester : 4							
Generic Core Courses							

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Catalog Course Code	Course Code	Course Title	Specialisation	Credit	Continuous Assessment	Term End Examination	Total Marks
T3912	0301420401	Industry Internship		12	360	240	600
Total				12	360	240	600

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Programme Structure 2025-27

Semester	Continuous Assessment	Term End Examination	Total Credits	Total Marks
Common				
Semester 1	0	23	23	1150
Semester 2	9	16	25	1250
Semester 3	7	13	20	1000
Semester 4	0	12	12	600
Total	16	64	80	4000