



Celebrating 50 Years of Excellence

Symbiosis Institute of Computer Studies and Research, Pune
Master of Science (Computer Applications)
Programme Structure 2020-22

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 specializations: i. Software Development ii. Systems Administration 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)
			15	7.5	3
		II. Over and above the sanctioned intake	a) Kashmiri Migrants (In Seats)	b) International Students (In Percentage)	
			2	15	
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	Symbiosis National Aptitude Test, Group Exercise, Personal Interaction and Writing Ability Test (GE-PIWAT)			
7.	MEDIUM OF INSTRUCTION	English			
8.	PROGRAMME PATTERN	Semester			
9.	COURSE & SPECIALIZATION	Attached as Annexure A			
10.	FEE		Academic Fee p.a	Institute Deposit	Total
		Indian Students	390000	20000	410000
		International Students (USD equivalent to INR)	585000	20000	605000
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 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/ DIPLOMA/ CERTIFICATE	Master of Science (Computer Applications) will be awarded at the end of 4th semester examination by taking into consideration the performance of all 4 semesters examinations after obtaining minimum 4.00 CGPA out of 10.00 CGPA.					
14.	NATURE WISE DISTRIBUTION OF CREDITS						
Semester	Generic Core	Generic Elective	Specialization Core	Specialization Elective	Open Elective	Audit	Total
1	18	0	8	0	0	0	26
2	8	0	8	6	0	1*	22
3	0	0	10	6	0	1*	16
4	16	0	0	0	0	0	16
Total	42	0	26	12	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

THIS IS SYSTEM GENERATED DOCUMENT AND REQUIRES NO SIGNATURE.



Celebrating 50 Years of Excellence

Symbiosis Institute of Computer Studies and Research, Pune
Master of Science (Computer Applications)
Programme Structure 2020-22

Annexure A

Catalog Course Code	Course Code	Course Title	Specialization	Credit	Internal Marks	External Marks	Total Marks
Semester : 1							
Generic Core Courses							
T3017	0301420101	Python Programming		3	90	60	150
T3555	0301420102	Operating System Fundamentals		3	90	60	150
T3545	0301420103	Fundamentals of Computer Networking		3	90	60	150
T3573	0301420104	Data Structures		3	90	60	150
T3574	0301420105	Design and Analysis of Algorithms		3	90	60	150
T3580	0301420106	Relational Database Management System		3	90	60	150
Total				18	540	360	900
Specialization Core Courses : Software Development							
T3012	0301420107	Java SE	Software Development	4	120	80	200
T3575	0301420108	Software Engineering (Agile Practices)	Software Development	4	120	80	200
Total				8	240	160	400
Specialization Core Courses : System Administration							
T3049	0301420109	Internetworking	System Administration	3	90	60	150
T3051	0301420110	Network Infrastructure	System Administration	3	90	60	150
T3061	0301420111	IT Infrastructure Library	System Administration	2	60	40	100
Total				8	240	160	400
Specialization Core Courses : Data Science							
T3012	0301420107	Java SE	Data Science	4	120	80	200
T3575	0301420108	Software Engineering (Agile Practices)	Data Science	4	120	80	200
Total				8	240	160	400
Semester : 2							
Generic Core Courses							
T3527	0301420201	Big Data: Systems, Programming and Management		4	200	0	200
T3009	0301420202	Best Programming Practices		2	100	0	100
T3701	0301420203	Dissertation		2	100	0	100
T4005	0301420204	Integrated Disaster Management *		0	0	0	Non Letter Grade
Total				8	400	0	400
Specialization 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
Specialization Core Courses : System Administration							
T3052	0301420207	Network Operating Systems	System Administration	3	90	60	150
T3537	0301420208	Scripting Language	System Administration	3	90	60	150
T3420	0301420209	Essentials of Vulnerability Assessment and Penetration Testing	System Administration	2	60	40	100
Total				8	240	160	400
Specialization Core Courses : Data Science							
T3120	0301420206	Software Project Management	Data Science	4	120	80	200
T3576	0301420210	Computation Methods	Data Science	2	60	40	100
T3577	0301420211	Data Analysis Using Python	Data Science	2	60	40	100
Total				8	240	160	400
Specialization Elective : System Administration							



Celebrating 50 Years of Excellence

Symbiosis Institute of Computer Studies and Research, Pune
Master of Science (Computer Applications)
Programme Structure 2020-22

Annexure A

Catalog Course Code	Course Code	Course Title	Specialization	Credit	Internal Marks	External Marks	Total Marks
T3356	0301420215	NOSQL Databases	System Administration	3	90	60	150
T3124	0301420217	Software Verification and Validation	System Administration	3	90	60	150
F0003	0301420219	Flexi-Credit Course	System Administration	3	150	0	150
T3279	0301420220	Database Administration - I	System Administration	3	90	60	150
T3022	0301420221	Cryptography	System Administration	3	90	60	150
Total Required Credits				6	180	120	300
Specialization Elective : Software Development							
T3003	0301420212	Android Technologies	Software Development	3	90	60	150
T3281	0301420213	Data Warehousing	Software Development	3	90	60	150
T3025	0301420214	Linux Scripting	Software Development	3	90	60	150
T3356	0301420215	NOSQL Databases	Software Development	3	90	60	150
T3018	0301420216	R Programming	Software Development	3	90	60	150
T3124	0301420217	Software Verification and Validation	Software Development	3	90	60	150
F0003	0301420218	Flexi-Credit Course	Software Development	3	150	0	150
Total Required Credits				6	180	120	300
Specialization Elective : Data Science							
T3281	0301420213	Data Warehousing	Data Science	3	90	60	150
T3025	0301420214	Linux Scripting	Data Science	3	90	60	150
T3356	0301420215	NOSQL Databases	Data Science	3	90	60	150
T3018	0301420216	R Programming	Data Science	3	90	60	150
T3268	0301420222	Fuzzy Logic	Data Science	3	90	60	150
F0003	0301420223	Flexi-Credit Course	Data Science	3	150	0	150
T3567	0301420224	Data Analysis and Visualization	Data Science	3	90	60	150
Total Required Credits				6	180	120	300
Semester : 3							
Generic Core Courses							
T0100	0301420301	Research Publication *		0	0	0	Non Letter Grade
Total				0	0	0	0
Specialization Core Courses : Software Development							
T3293	0301420302	Software Architectures	Software Development	4	120	80	200
T3536	0301420303	Web UI and Content Management	Software Development	4	120	80	200
T3802	0301420304	Pilot Project	Software Development	2	100	0	100
Total				10	340	160	500
Specialization Core Courses : System Administration							
T3053	0301420305	Server Security and Hardening	System Administration	4	120	80	200
T3418	0301420306	Advanced Vulnerability Assessment and Penetration Testing	System Administration	2	60	40	100
T3416	0301420307	Computer Forensic - Detection & Prevention of Frauds	System Administration	2	60	40	100
T3048	0301420308	Essentials of System Administration	System Administration	2	100	0	100
Total				10	340	160	500
Specialization Core Courses : Data Science							
T3802	0301420304	Pilot Project	Data Science	2	100	0	100
T3578	0301420309	Image Processing	Data Science	4	120	80	200



Celebrating 50 Years of Excellence

Symbiosis Institute of Computer Studies and Research, Pune
Master of Science (Computer Applications)
Programme Structure 2020-22

Annexure A

Catalog Course Code	Course Code	Course Title	Specialization	Credit	Internal Marks	External Marks	Total Marks
T3579	0301420310	Machine Learning Algorithms	Data Science	4	120	80	200
Total				10	340	160	500
Specialization Elective : System Administration							
T3015	0301420313	Network Programming	System Administration	3	90	60	150
F0003	0301420317	Flexi-Credit Course	System Administration	3	150	0	150
T3280	0301420318	Database Administration - II	System Administration	3	90	60	150
T3050	0301420319	IS Risk Analysis and System Audit	System Administration	3	90	60	150
T3065	0301420320	Network Operations, Design, Optimization and Management	System Administration	3	90	60	150
T3278	0301420321	Applied Cryptography	System Administration	3	90	60	150
T3419	0301420322	Cloud Development and Administration	System Administration	3	90	60	150
T3063	0301420323	Data Centre Infrastructure Management	System Administration	3	90	60	150
T3056	0301420324	Wireless Networks	System Administration	3	90	60	150
Total Required Credits				6	240	60	300
Specialization Elective : Software Development							
T3008	0301420311	Cloud Programming using Web Services	Software Development	3	90	60	150
T3111	0301420312	Data Mining and Algorithms	Software Development	3	90	60	150
T3015	0301420313	Network Programming	Software Development	3	90	60	150
T3122	0301420314	Software Quality Models	Software Development	3	90	60	150
T3271	0301420315	Systems Programming	Software Development	3	90	60	150
F0003	0301420316	Flexi-Credit Course	Software Development	3	150	0	150
Total Required Credits				6	180	120	300
Specialization Elective : Data Science							
T3008	0301420311	Cloud Programming using Web Services	Data Science	3	90	60	150
T3448	0301420325	Text Analytics	Data Science	3	90	60	150
F0003	0301420326	Flexi-Credit Course	Data Science	3	150	0	150
T3566	0301420327	Artificial Neural Network and Deep Learning	Data Science	3	90	60	150
T3568	0301420328	Natural Language Processing	Data Science	3	90	60	150
T3569	0301420329	Data Science for IOT	Data Science	3	90	60	150
Total Required Credits				6	180	120	300
Semester : 4							
Generic Core Courses							
T3916	0301420401	Industry Internship		16	480	320	800
Total				16	480	320	800



Celebrating 50 Years of Excellence

Symbiosis Institute of Computer Studies and Research, Pune
Master of Science (Computer Applications)
Programme Structure 2020-22

Semester	Internal Credits	External Credits	Total Credits	Total Marks
Software Development				
Semester1	0	26	26	1300
Semester2	11	11	22	1100
Semester3	5	11	16	800
Semester4	0	16	16	800
Total	16	64	80	4000
System Administration				
Semester1	0	26	26	1300
Semester2	11	11	22	1100
Semester3	5	11	16	800
Semester4	0	16	16	800
Total	16	64	80	4000
Data Science				
Semester1	0	26	26	1300
Semester2	11	11	22	1100
Semester3	5	11	16	800
Semester4	0	16	16	800
Total	16	64	80	4000