

**SYMBIOSIS INSTITUTE OF COMPUTER STUDIES AND RESEARCH**  
**MASTER OF SCIENCE (COMPUTER APPLICATIONS)**  
**PROGRAM STRUCTURE 2014-16**

<b>1</b>	<b>OBJECTIVES</b>	The program will equip students with knowledge, highly relevant to emerging technologies. This course aims to provide a comprehensive framework for understanding by integrating theoretical foundations with extensive practical work in the labs and hands-on experience.
<b>2</b>	<b>DURATION</b>	Two Years Full Time
<b>3</b>	<b>INTAKE</b>	90 Students
<b>4</b>	<b>RESERVATION</b>	I. Within the sanctioned intake:  a) Scheduled Castes - 15% b) Scheduled Tribes - 7.5% c) Differently abled - 3%  II. Over and above the sanctioned intake:  a) Kashmiri Migrants - 2 Seats b) International Students - 15%
<b>5</b>	<b>ELIGIBILITY</b>	Graduate in any discipline from any statutory/recognized University with minimum 50% marks (45% for SC/ST).
<b>6</b>	<b>SELECTION PROCEDURE</b>	Symbiosis National Aptitude Test Score, Academic Profile Score, Personal Interaction and Writing Ability Test (PI-WAT)
<b>7</b>	<b>MEDIUM OF INSTRUCTION</b>	English
<b>8</b>	<b>PROGRAM PATTERN</b>	Semester Pattern - 4 Semesters
<b>9</b>	<b>COURSES &amp; SPECIALIZATION</b>	As per Annexure A

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|-------------------------------|--|
| <b>10 FEE</b>                 | <p><b>Indian Students</b></p> <p>Academic Fee p.a. Rs. 2,70,000</p> <p>Institute Deposit Rs. 10,000</p> <p>Pre Induction Course Fee Rs. 35,000</p> <p><b>Total Rs. 3,15,000</b></p> <p><b>International Students</b></p> <p>Academic Fee p.a. Rs. 4,05,000</p> <p>Institute Deposit Rs. 10,000</p> <p>Pre Induction Course Fee Rs. 35,000</p> <p><b>Total Rs. 4,50,000</b></p>   |
| <b>11 ASSESSMENT</b>          | <p>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.</p>  |
| <b>12 STANDARD OF PASSING</b> | <p>The assessment of students for each examination is done based on relative performance. Maximum Grade Point (GP) is 4.000 corresponding to Grade A+. For all courses, a student has to pass both internal and external examination separately with a minimum Grade Point of 2.000 corresponding to Grade D. Students securing less than 40% absolute marks in each head of passing will be declared FAIL. The University awards a degree the student who has achieved a minimum CGPA of 2.000 out of maximum of 4.000 for the program.</p> |
| <b>13 AWARD OF DEGREE</b>     | <p><b>Master of Science (Computer Applications) MSc (CA)</b> will be awarded at the end of semester IV examination by taking into consideration the performance of all semester examinations after obtaining minimum 2.00 CGPA out of 4.000.</p>   |

## Annexure A

## Semester I

Temporary Course Code	Course Code	Course Title	Cat	Credits	Marks		
					Internal	External	Total
T3002	030142101	Scientific Report Writing	C	2	100	-	100
T3009	030142102	Best Programming Practices	C	2	100	-	100
T3012	030142103	Java SE	C	4	120	80	200
T3013	030142104	Java Script	C	2	60	40	100
T3017	030142105	Python Programming	C	3	90	60	150
T3020	030142106	Advance Operating Systems and Kernel Architecture	C	3	90	60	150
T3023	030142107	Data Structures and Algorithms	C	4	120	80	200
T3025	030142108	Linux Scripting	C	3	150	-	150
T3115	030142109	Relational Database Management System	C	4	120	80	200
T3117	030142110	Software Engineering	C	4	120	80	200
		<b>Total</b>		<b>31</b>	<b>1070</b>	<b>480</b>	<b>1550</b>

## Semester II

Temporary Course Code	Course Code	Course Title	Cat	Credits	Marks		
					Internal	External	Total
T3701	030142201	Dissertation	C	2	100	-	100
T3114	030142202	Object Oriented Analysis and Design	SD	4	120	80	200
T3116	030142203	Software Architectures	SD	3	90	60	150
T3120	030142204	Software Project Management	SD	4	120	80	200
T3049	030142205	Internetworking	SA	3	90	60	150
T3051	030142206	Network Infrastructure	SA	3	90	60	150
T3052	030142207	Network Operating Systems	SA	3	90	60	150
T3061	030142208	IT Infrastructure Library	SA	2	60	40	100
T3004	030142209	C# Programming	OPT 1	3	90	60	150
T3006	030142210	ABAP Programming	OPT 1	3	90	60	150
T3007	030142211	Web UI Technologies	OPT 1	3	90	60	150
T3011	030142212	Java EE	OPT 1	3	90	60	150
T3018	030142213	R Programming	OPT 1	3	90	60	150
T3021	030142214	ANN Models	OPT 1	3	90	60	150
T3015	030142215	Network Programming	OPT 2	3	90	60	150
T3019	030142216	XML Technologies	OPT 2	3	90	60	150
T3022	030142217	Cryptography	OPT 2	3	90	60	150
T3024	030142218	Distributed Systems	OPT 2	3	90	60	150
T3047	030142219	Database Administration	OPT 2	3	90	60	150
		<b>Total</b>		<b>25</b>	<b>790</b>	<b>460</b>	<b>1250</b>
T4005	030142220	*Integrated Disaster Management	C	-	-	-	Letter Grade

**Note: Student opting for Software Development (SD) will have to take all courses from category SD and will have to select any 4 courses from OPT 1 and OPT 2.**

**Student opting for System Administration (SA) will have to take all courses from category SA and will have to select any 4 courses only from category OPT 2.**

## Semester III

Temporary Course Code	Course Code	Course Title	Cat	Credits	Marks		
					Internal	External	Total
T3001	030142301	Current Trends	SD	2	100	-	100
T3014	030142302	Mobile Computing Technologies	SD	4	120	80	200
T3189	030142303	Web Content Management Systems	SD	4	200	-	200
T3802	030142304	Pilot Project	SD	2	100	-	100
T3122	030142305	Software Quality Models	SD	3	90	60	150
T3031	030142306	BCM DR and Crisis Response Management	SA	2	100	-	100
T3048	030142307	Essentials of System Administration	SA	2	100	-	100
T3050	030142308	IS Risk Analysis and System Audit	SA	3	90	60	150
T3053	030142309	Server Security and Hardening	SA	4	120	80	200
T3054	030142310	Vulnerability Assessment and Penetration Testing	SA	4	200	-	200
T3056	030142311	Wireless Networks	SA	3	90	60	150
T3005	030142312	ASP.Net Programming	OPT 1	3	90	60	150
T3008	030142313	Cloud Programming using Web Services	OPT 1	3	90	60	150
T3027	030142314	Soft Computing Algorithms and Application	OPT 1	3	90	60	150
T3111	030142315	Data Mining and Algorithms	OPT 1	3	90	60	150
T3136	030142316	System Dynamics Simulation	OPT 1	3	90	60	150
T3046	030142317	Administration of Cloud	OPT 2	3	90	60	150
T3063	030142318	Data Center Infrastructure Management	OPT 2	3	90	60	150

T3065	030142319	Network Operations, Design, Optimization and Management	OPT 2	3	90	60	150
T3032	030142320	Computer Forensics – Detection and Prevention of Frauds	OPT 3	3	90	60	150
T3124	030142321	Software Verification and Validation	OPT 3	3	90	60	150
		<b>Total</b>		<b>24</b>	<b>880</b>	<b>320</b>	<b>1200</b>

**Note: Student opting for Software Development (SD) will have to take all courses from category SD and will have to select any 3 courses from OPT 1 and OPT 3.**

**Student opting for System Administration (SA) will have to take all courses from category SA and will have to select any 2 courses from category OPT 2 and OPT 3.**

## Semester IV

Temporary Course Code	Course Code	Course Title	Cat	Credits	Marks		
					Internal	External	Total
T3911	030142401	Industrial Internship	C	20	600	400	1000
		<b>Total</b>		<b>20</b>	<b>600</b>	<b>400</b>	<b>1000</b>

## Summary

Semester	Internal Credits	External Credits	Total Credits	Total Marks
Semester I	07	24	31	1550
Semester II	02	23	25	1250
Semester III	08	16	24	1200
Semester IV	-	20	20	1000
<b>Total</b>	<b>17</b>	<b>83</b>	<b>100</b>	<b>5000</b>

\*Integrated Disaster Management is mandatory for the award of degree.