

**Symbiosis Institute of Computer Studies and Research, Pune**  
**Bachelor of Computer Applications**  
**Programme Structure 2018-21**

1.	<b>OBJECTIVE</b>	BCA offers the prequalification for professionals heading for smart career in the IT field, which measures up to international standards. On completing this course one can do higher studies such as MCA, MBA etc., in any UGC recognized universities or in any other reputed institution in India or abroad.			
2.	<b>DURATION (IN MONTHS)</b>	36 (Full Time)			
3.	<b>INTAKE</b>	60			
4.	<b>RESERVATION</b>	<b>I. Within the sanctioned intake</b>	<b>a) SC (In Percentage)</b>	<b>b) ST (In Percentage)</b>	<b>c) Differently abled (In Percentage)</b>
			15	7.5	3
		<b>II. Over and above the sanctioned intake</b>	<b>a) Kashmiri Migrants (In Seats)</b>	<b>b) International Students (In Percentage)</b>	
			2	15	
5.	<b>ELIGIBILITY</b>	Std. XII (10+2) pass or equivalent examination from any recognised Board with a minimum of 50% marks or equivalent grade (45% Marks or equivalent grade for Scheduled Caste / Scheduled Tribes)			
6.	<b>SELECTION PROCEDURE</b>	Symbiosis Entrance Test, Personal Interaction and Writing Ability Test (PI-WAT)			
7.	<b>MEDIUM OF INSTRUCTION</b>	English			
8.	<b>PROGRAMME PATTERN</b>	Semester			
9.	<b>COURSE &amp; SPECIALIZATION</b>	As per Annexure A			
10.	<b>FEE</b>		<b>Academic Fee p.a</b>	<b>Institute Deposit</b>	<b>Total</b>
		<b>Indian Students</b>	155000	10000	165000
		<b>International Students (USD equivalent to INR)</b>	235000	10000	245000
11.	<b>ASSESSMENT</b>	All internal courses will have 100% component as internal evaluation at the institute level. All external courses will have 40% internal component and 60% external component [University] examination.			
12.	<b>STANDARD OF</b>	The assessment of students for each examination is done, based on relative			

	<b>PASSING</b>	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.
<b>13.</b>	<b>AWARD OF DEGREE</b>	Bachelor of Computer Applications will be awarded at the end of semester VI examination by 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	22	0	0	0	0	1*	22
2	20	4	0	0	0	0	24
3	26	0	0	0	0	1*	26
4	24	2	0	0	0	0	26
5	22	4	0	0	0	0	26
6	18	8	0	0	0	0	26
<b>Total</b>	<b>132</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>150</b>

\* Satisfactory completion of the letter grade course 'Integrated Disaster Management' 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
<b>Semester : 1</b>							
<b>Generic Core Courses</b>							
T3211	030121101	Digital Electronics		2	20	30	50
T3198	030121102	Introduction to Python		2	20	30	50
T3214	030121103	Logic Development and Programming Concepts		2	50	0	50
T3207	030121104	Computer Fundamentals		2	20	30	50
T3213	030121105	Introduction to Operating System		2	20	30	50
T3326	030121106	Foundation of Web Technologies		4	40	60	100
T3256	030121107	IT Tools for Statistics-I		2	20	30	50
T3205	030121108	Web Development using CMS		2	50	0	50
T2495	030121109	Business Communication		2	50	0	50
T3322	030121110	Elements of Mathematics		2	20	30	50
T4005	030121111	Integrated Disaster Management *					Letter Grade
<b>Total</b>				<b>22</b>	<b>310</b>	<b>240</b>	<b>550</b>
<b>Semester : 2</b>							
<b>Generic Core Courses</b>							
T3275	030121201	Basics of Microprocessors		2	20	30	50
T3206	030121202	Advanced Programming in Python		2	20	30	50
T3209	030121203	Data Structures		2	20	30	50
T3224	030121204	Network Essentials		2	20	30	50
T3216	030121205	Operating System Internals		2	20	30	50
T3327	030121206	Client Side Web Technologies		4	40	60	100
T3257	030121207	IT Tools for Statistics-II		2	20	30	50
T3244	030121208	Introduction to Database Management System		2	20	30	50
T3385	030121209	Introduction to Object Oriented Design		2	20	30	50
<b>Total</b>				<b>20</b>	<b>200</b>	<b>300</b>	<b>500</b>
<b>Generic Elective Courses Group</b>							

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T6197	030121210	German A-1 - Paper 1		4	100	0	100
T6191	030121211	French A-1 - Paper 1		4	100	0	100
<b>Total Required Credits</b>				<b>4</b>	<b>100</b>	<b>0</b>	<b>100</b>
<b>Semester : 3</b>							
<b>Generic Core Courses</b>							
T3380	030121301	Computer Organization and Microprocessor		4	40	60	100
T3266	030121302	Basics of C Programming		4	40	60	100
T3210	030121303	Design and Implementation of Algorithms		2	20	30	50
T3204	030121304	Server Side Web Technology		4	40	60	100
T3390	030121305	SQL Programming		4	40	60	100
T3202	030121306	Object Oriented Programming		4	40	60	100
T3391	030121307	Software Engineering Practices		4	40	60	100
T2883	030121308	Core Environmental Studies *					Letter Grade
<b>Total</b>				<b>26</b>	<b>260</b>	<b>390</b>	<b>650</b>
<b>Semester : 4</b>							
<b>Generic Core Courses</b>							
T3273	030121401	Advanced Processor Architecture		2	20	30	50
T3267	030121402	Advanced Programming in C		2	20	30	50
T3318	030121403	Optimization Techniques in IT		4	40	60	100
T3522	030121404	Advanced Web Content Management Systems		2	20	30	50
T3387	030121405	Introduction to Design Patterns		2	20	30	50
T3192	030121406	Technical Document Design		2	50	0	50
T8000	030121407	Service Learning		4	100	0	100
T3258	030121408	Current Trends and Practices in IT		3	75	0	75
T3803	030121409	Project		3	75	0	75
<b>Total</b>				<b>24</b>	<b>420</b>	<b>180</b>	<b>600</b>
<b>Generic Elective Courses Group</b>							

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T6099	030121410	An Overview of World Literature		2	50	0	50
T6181	030121411	Understanding Cinema		2	50	0	50
T6182	030121412	Appreciating Cinema		2	50	0	50
T6246	030121413	Music in Media I		2	50	0	50
T6255	030121414	Introduction to Theatre		2	50	0	50
T6307	030121415	Basic Psychology		2	50	0	50
T6334	030121416	Basic Sociology		2	50	0	50
T6274	030121417	Foundations of Ethics		2	50	0	50
T6096	030121418	Creative Writing		2	50	0	50
<b>Total Required Credits</b>				<b>2</b>	<b>50</b>	<b>0</b>	<b>50</b>
<b>Semester : 5</b>							
<b>Generic Core Courses</b>							
T3388	030121501	Introduction to Software Projects		2	20	30	50
T3523	030121502	Introduction to Programming Practices		2	20	30	50
T3371	030121503	Introduction to Java Enterprise Framework		2	20	30	50
T3220	030121504	Information Security		2	20	30	50
T3243	030121505	Verification and Validation Techniques		4	40	60	100
T2658	030121506	Design Thinking		2	20	30	50
T3237	030121507	Foundations of Data Warehousing and Data Mining		4	40	60	100
T3442	030121508	Introduction to data Sciences		2	20	30	50
T3190	030121509	Dissertation		2	50	0	50
<b>Total</b>				<b>22</b>	<b>250</b>	<b>300</b>	<b>550</b>
<b>Select any one group of electives</b>							
<b>Generic Elective Courses</b>							
T3373	030121510	Introduction to Android Programming		2	20	30	50
T3466	030121511	Computer Animation		2	20	30	50
<b>Total Required Credits</b>				<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>
<b>Generic Elective Courses</b>							

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T3212	030121512	Distributed Computing		2	20	30	50
T3225	030121513	Network Planning and Design		2	20	30	50
<b>Total Required Credits</b>				<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>
<b>Generic Elective Courses</b>							
T3520	030121514	Introduction to Internet of Things		2	20	30	50
T3518	030121515	Introduction to Embedded Systems		2	20	30	50
<b>Total Required Credits</b>				<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>
<b>Generic Elective Courses</b>							
T3531	030121516	R Programming		2	20	30	50
T3529	030121517	NOSQL Databases		2	20	30	50
<b>Total Required Credits</b>				<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>
<b>Semester : 6</b>							
<b>Generic Core Courses</b>							
T3382	030121601	Introduction to E-bussiness		2	20	30	50
T3372	030121602	Enterprise Application Development using JavaEE		4	40	60	100
T1234	030121603	Information Technology and Regulatory Compliance		2	20	30	50
T3528	030121604	Big Data		2	20	30	50
T3808	030121605	Project		8	80	120	200
<b>Total</b>				<b>18</b>	<b>180</b>	<b>270</b>	<b>450</b>
<b>Select any one group of electives</b>							
<b>Generic Elective Courses</b>							
T3374	030121606	Advance Android Programming		4	40	60	100
T3250	030121607	Multimedia		4	40	60	100
<b>Total Required Credits</b>				<b>8</b>	<b>80</b>	<b>120</b>	<b>200</b>
<b>Generic Elective Courses</b>							
T3221	030121608	Introduction to Cloud Computing		4	40	60	100
T3222	030121609	Introduction to Vulnerability Assessment Penetration Testing		4	40	60	100

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<b>Total Required Credits</b>				<b>8</b>	<b>80</b>	<b>120</b>	<b>200</b>
<b>Generic Elective Courses</b>							
T3521	030121610	Advanced Internet of Things		4	40	60	100
T3519	030121611	Advanced Embedded Systems		4	40	60	100
<b>Total Required Credits</b>				<b>8</b>	<b>80</b>	<b>120</b>	<b>200</b>
<b>Generic Elective Courses</b>							
T3447	030121612	Machine learning		3	30	45	75
T3441	030121613	Web Analytics		3	30	45	75
T3449	030121614	Predictive Analytics		2	20	30	50
<b>Total Required Credits</b>				<b>8</b>	<b>80</b>	<b>120</b>	<b>200</b>

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Semester	Internal Credits	External Credits	Total Credits	Total Marks
Semester 1	6	16	22	550
Semester 2	4	20	24	600
Semester 3	0	26	26	650
Semester 4	14	12	26	650
Semester 5	2	24	26	650
Semester 6	0	26	26	650
<b>Total</b>	<b>26</b>	<b>124</b>	<b>150</b>	<b>3750</b>