



SARALA
BIRLA
UNIVERSITY

Established under the Sarala Birla University Act 2017 Govt. of Jharkhand as per Section 2(f) of UGC Act. 1956

CURRICULUM

FOR

Bachelor of Computer Application

(Based on UGC- CBCS)

Effective from 2021-2022

DEFINITION OF CREDIT

1 Hr. Lecture (L) per week	1 credit
1 Hr. Tutorial (T) per week	1 credit
1 Hr. Practical (P) per week	0.5 credit
2 Hours Practical (Lab)/week	1 credit
4 Hours Practical (Lab)/week	2 credits

COURSE CODE AND DEFINITION

Course Code	Definition
CC	Core Course
AEC	Ability Enhancement Compulsory Course
SEC	Skill Enhancement Course
GE	Generic Elective/ Interdisciplinary
DSE	Discipline Specific Elective Course
Project Work/ Dissertation/ OJT	Project Work/ Dissertation/ On Job Training

STRUCTURE OF BACHELOR OF COMPUTER APPLICATION PROGRAM

S.No	Course Type	Credit Breakup
1	Core Course	69
2	Ability Enhancement Course	9
3	Skill Enhancement Course	4
4	Generic Elective/ Interdisciplinary	17
5	Discipline Specific Elective Course	17
6	Project Work/ Dissertation/ OJT	8
TOTAL		124

CREDITS DISTRIBUTION (SEMESTER-WISE AND COURSE-WISE)							
Semester	Types of Courses						Total Credit
	CC	AEC	GE	SEC	DSE	PROJECT	
1st	11	3	5				19
2nd	10	2	5				17
3rd	15	2		2			19
4th	15	2	5	2			24
5th	14		4		4	2	24
6th	4				13	6	23
Total Credit Course-wise	69	9	19	4	17	8	126
	TOTAL CREDIT						126

Marks Structure BCA 3 years Course						
Sl. No.	Semester	Total Credits	Total Classes per Week	Total Internal Assessment	Total External Assessment Marks	Total Marks
1	I	19	22	210	340	550
2	II	16	18	180	320	500
3	III	19	22	210	340	550
4	IV	23	27	270	430	700
5	V	24	28	315	435	750
6	VI	23	30	225	325	550
Total		124	147	1410	2190	3600

Professional Core Course (Sem I & II)
Branch: BACHELOR OF COMPUTER APPLICATION (BCA)
Core Course (CC)

S.No	Category	Course Code	Course Title	Credit	Semester	Lecture/Week
1	Core Course	BCA-101	Programming in C	4	I	4
2	Core Course	BCA-102	Programming in C Lab	1	I	2
3	Core Course	BCA-103	Computer System Architecture	4	I	4
4	Core Course	BCA-104	Computer System Architecture Lab	1	I	2
5	Core Course	BCA-114	Office Automation Tools	1	I	2
6	Core Course	BCA-107	Object Oriented Programming	4	II	4
7	Core Course	BCA-108	Object Oriented Programming Lab	1	II	2
8	Core Course	BCA-109	Data Structure	4	II	4
9	Core Course	BCA-110	Data Structure Lab	1	II	2
Total Credit (Theory+Lab)				21		26

Professional Core Course (Sem III & IV)
Branch: BACHELOR OF COMPUTER APPLICATION (BCA)
Core Course (CC)

S.No	Category	Course Code	Course Title	Credit	Semester	Lecture/Week
10	Core Course	BCA-201	Discrete Mathematics	5	III	5
11	Core Course	BCA-202	Operating System	4	III	4
12	Core Course	BCA-203	Operating System Lab	1	III	2
13	Core Course	BCA-204	Computer Network	4	III	4
14	Core Course	BCA-205	Computer Network Lab	1	III	2
15	Core Course	BCA-208	Design & Analysis of Algorithm	4	IV	4
16	Core Course	BCA-209	Design & Analysis of Algorithm Lab	1	IV	2
17	Core Course	BCA-210	Software Engineering	4	IV	4
18	Core Course	BCA-211	Software Engineering Lab	1	IV	2
19	Core Course	BCA-212	Database Management System	4	IV	4
20	Core Course	BCA-213	Database Management System Lab	1	IV	2
Total Credit (Theory+Lab)				30		35

Professional Core Course (Sem V & VI)
Branch: BACHELOR OF COMPUTER APPLICATION (BCA)
Core Course (CC)

S.No	Category	Course Code	Course Title	Credit	Semester	Lecture/Week
21	Core Course	BCA-301	Internet Technology & Web Design	4	V	4
22	Core Course	BCA-302	Internet Technology & Web Design	1	V	2
23	Core Course	BCA-303	Theory of Computation	4	V	4
25	Core Course	BCA-304	Computer Graphics	4	V	4
26	Core Course	BCA-305	Computer Graphics Lab	1	V	2
24	Core Course	BCA-306	Artificial Intelligence	4	VI	4
Total Credit (Theory+Lab)				18		20
Total Credit				69		81

Ability Enhancement Course (AEC)						
Ability Enhancement Compulsary Course (AECC)						
S.No	Category	Course Code	Course Title	Credit	Semester	Lecture/Week
1	Ability Enhancement Compulsary Course	BCA-105	Technical English	3	I	3
2		BCA-115	PDP-I	0	I	2
3		BCA-116	PT & Games/NSS/NCC-I	0	I	1
4		BCA-111	Environmental Science	2	II	2
5		BCA-113	Values & Ethics	0	II	2
6		BCA-117	PDP-II	0	II	2
7		BCA-118	PT & Games/NSS/NCC-II	0	II	1
8		BCA-217	PDP-III	0	III	2
9		BCA-218	PDP-IV	0	IV	2
10		BCA-307	PDP-V	0	V	2
11		BCA-308	PDP-VI	0	VI	2
Total Credit				5		
Ability Enhancement Elective Course (AEEC)						
S.No	Category	Course Code	Course Title	Credit	Semester	Lecture/Week
1	Ability Enhancement Elective Course	BCA-206	French Through Communicative Approach- I	2	III	2
2		BCA-215	French Through Communicative Approach- II	2	IV	2
Total Credit				4		
Total Credit (AECC + AEEC)				9		
Skill Enhancement Course						
S.No	Category	Course Code	Course Title	Credit	Semester	Lecture/Week
1	Skill Enhancement Course	BCA-207	Python Programming	2	III	3
2	Skill Enhancement Course	BCA-216	Android Programming	2	IV	3
Total Credit				4		
Generic Elective						
S.No	Category	Course Code	Course Title	Credit	Semester	Lecture/Week
1	Generic Elective/	BCA-106	Mathematics-I	5	I	5
2		BCA-112	Mathematics-II	4	II	4
3		BCA-214	Numerical Methods	4	IV	4

4	Interdisciplinary	BCA-309	Management Principle and Organisational Behaviour	4	V	4
Total Credit				17		

Discipline Specific Elective Courses

Sl. No.	Category	Course Code	Course Title	Credit	Semester	Lecture/ Week
1	Discipline Specific Elective Course	BCA-401	Data Mining & Warehousing	4	V/ VI	4
2	Discipline Specific Elective Course	BCA-402	Digital Image Processing	4	V/ VI	4
3	Discipline Specific Elective Course	BCA-403	Digital Image Processing Lab	1	V/ VI	2
4	Discipline Specific Elective Course	BCA-404	Cloud Computing	4	V/ VI	4
5	Discipline Specific Elective Course	BCA-405	Scientific Computing	4	V/ VI	4
6	Discipline Specific Elective Course	BCA-406	Information Security	4	V/ VI	4
7	Discipline Specific Elective Course	BCA-407	Machine Learning	4	V/ VI	4
8	Discipline Specific Elective Course	BCA-408	Computational Intelligence	4	V/ VI	4
9	Discipline Specific Elective Course	BCA-409	Introduction to Data Science	4	V/ VI	4

	Category	Course Code	Course Title	Credit	Semester	Lecture/ Week
	Project Work and Dissertation	BCA-309	Project Work and Dissertation	6	VI	12
		Total Credit		6		

Project Work

Sl. No.	Category	Course Code	Course Title	Credit	Prefered Semester	Lecture/ Week
1	Project Work/ Dissertation/ On Job Training	BCA-310	Minor Project Work	2	V	4
2		BCA-318	Major Project Work & Dissertation	6	VI	12

COURSE STRUCTURE

SEMESTER I (FIRST YEAR)

BACHELOR OF COMPUTER APPLICATION (BCA)

HONOURS PROGRAMME

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Core Course	BCA-101	Programming in C	3	1	0	4	30	70	100
2	Core Course	BCA-103	Computer System Architecture	3	1	0	4	30	70	100
3	Ability Enhancement Compulsory Course	BCA-105	Technical English	2	1	0	3	30	70	100
4	Ability Enhancement Compulsory Course	BCA-115	PDP-I	2	0	0	0	0	0	0
5	Ability Enhancement Compulsory Course	BCA-116	PT & Games/NSS/NCC-I	1	0	0	0	0	0	0
6	Generic Elective/ Interdisciplinary	BCA-106	Mathematics-I	4	1	0	5	30	70	100
Total(A)							16	120	280	400
Practical										
1	Core Course	BCA-102	Programming in C Lab	0	0	2	1	30	20	50
2	Core Course	BCA-104	Computer System Architecture Lab	0	0	2	1	30	20	50
3	Core Course	BCA-114	Office Automation Tools	0	0	2	1	30	20	50
Total(B)							3	90	60	150
Grand Total (A+B)							19	210	340	550

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER II (FIRST YEAR)

BACHELOR OF COMPUTER APPLICATION (BCA)

HONOURS PROGRAMME

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Core Course	BCA-107	Object Oriented Programming	3	1	0	4	30	70	100
2	Core Course	BCA-109	Data Structure	3	1	0	4	30	70	100
3	Ability Enhancement Compulsary Course	BCA-111	Environmental Science	2	0	0	2	30	70	100
4	Generic Elective/ Interdisciplinary	BCA-112	Mathematics-II	3	1	0	4	30	70	100
5	Ability Enhancement Compulsary Course	BCA-113	Values & Ethics	2	0	0	0	0	0	0
6	Ability Enhancement Compulsary Course	BCA-117	PDP-II	2	0	0	0	0	0	0
7	Ability Enhancement Compulsary Course	BCA-118	PT & Games/NSS/NCC-II	1	0	0	0	0	0	0
Total(A)							14	120	280	400
Practical										
1	Core Course	BCA-108	Object Oriented Programming Lab	0	0	2	1	30	20	50
2	Core Course	BCA-110	Data Structure Lab	0	0	2	1	30	20	50
Total(B)							2	60	40	100
Grand Total (A+B)							16	180	320	500

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER III (SECOND YEAR)

**BACHELOR OF COMPUTER APPLICATION (BCA)
HONOURS PROGRAMME**

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Core Course	BCA-201	Discrete Mathematics	4	1	0	5	30	70	100
2	Core Course	BCA-202	Operating System	3	1	0	4	30	70	100
3	Core Course	BCA-204	Computer Network	3	1	0	4	30	70	100
4	Ability Enhancement Elective Course	BCA-206	French Through Communicative Approach-I	2	0	0	2	30	70	100
5	Ability Enhancement Compulsary Course	BCA-217	PDP-III	2	0	0	0	0	0	0
Total(A)							15	120	280	400
Practical										
1	Core Course	BCA-203	Operating System Lab	0	0	2	1	30	20	50
2	Core Course	BCA-205	Computer Network Lab	0	0	2	1	30	20	50
3	Skill Enhancement Course	BCA-207	Python Programming	1	0	2	2	30	20	50
Total(B)							4	90	60	150
Grand Total (A+B)							19	210	340	550

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER IV (SECOND YEAR)

BACHELOR OF COMPUTER APPLICATION (BCA)

HONOURS PROGRAMME

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Core Course	BCA-208	Design & Analysis of Algorithm	3	1	0	4	30	70	100
2	Core Course	BCA-210	Software Engineering	3	1	0	4	30	70	100
3	Core Course	BCA-212	Database Management System	3	1	0	4	30	70	100
4	Generic Elective/ Interdisciplinary	BCA-214	Numerical Methods	3	1	0	4	30	70	100
5	Ability Enhancement Elective Course	BCA-215	French Through Communicative Approach-II	2	0	0	2	30	70	100
6	Ability Enhancement Compulsary Course	BCA-218	PDP-IV	2	0	0	0	0	0	0
Total(A)							18	150	350	500
Practical										
1	Core Course	BCA-209	Design & Analysis of Algorithm Lab	0	0	2	1	30	20	50
2	Core Course	BCA-211	Software Engineering Lab	0	0	2	1	30	20	50
3	Core Course	BCA-213	Database Management System Lab	0	0	2	1	30	20	50
4	Skill Enhancement Course	BCA-216	Android Programming	1	0	2	2	30	20	50
Total(B)							5	120	80	200
Grand Total (A+B)							23	270	430	700

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER V (THIRD YEAR)

BACHELOR OF COMPUTER APPLICATION (BCA)

HONOURS PROGRAMME

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Core Course	BCA-301	Internet Technology & Web Design	3	1	0	4	30	70	100
2	Core Course	BCA-303	Theory of Computation	3	1	0	4	30	70	100
3	Core Course	BCA-304	Computer Graphics	3	1	0	4	30	70	100
4	Discipline Specific Elective Course	BCA-401	Data Mining & Warehousing	3	1	0	4	30	70	100
5	Generic Elective/ Interdisciplinary	BCA-309	Management Principle & Organizational Behavior	4	0	0	4	30	70	100
6	Ability Enhancement Compulsary Course	BCA-307	PDP-V	2	0	0	0	0	0	0
Total(A)							20	150	350	500
Practical										
1	Core Course	BCA-302	Internet Technology & Web Design Lab	0	0	2	1	30	20	50
2	Core Course	BCA-305	Computer Graphics Lab	0	0	2	1	30	20	50
3	Project Work/ Dissertation/ On Job Training	BCA-310	Minor Project Work	0	0	4	2	75	25	100
Total(B)							4	135	65	200
Grand Total (A+B)							24	285	415	700

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER VI (THIRD YEAR)

BACHELOR OF COMPUTER APPLICATION (BCA)

HONOURS PROGRAMME

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Core Course	BCA-306	Artificial Intelligence	3	1	0	4	30	70	100
3	Discipline Specific Elective Course	BCA-402	Digital Image Processing	4	0	0	4	30	70	100
3	Discipline Specific Elective Course	BCA-406	Information Security	3	1	0	4	30	70	100
4	Discipline Specific Elective Course	BCA-407	Machine Learning	3	1	0	4	30	70	100
5	Ability Enhancement Compulsary Course	BCA-308	PDP-VI	2	0	0	0	0	0	0
Total(A)							16	120	280	400
Practical										
1	Discipline Specific Elective Courses	BCA-403	Digital Image Processing Lab	0	0	2	1	30	20	50
2	Project Work/ Dissertation/ On Job Training	BCA-318	Major Project Work & Dissertation	0	0	12	6	75	25	100
Total(B)							7	105	45	150
Grand Total (A+B)							23	225	325	550

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination