



ALVA'S COLLEGE

(AUTONOMOUS)

A Unit of Alva's Education Foundation (R.)
Affiliated to Mangalore University



STATE EDUCATION POLICY – 2024 [SEP-2024]

CURRICULUM STRUCTURE FOR BACHELOR OF COMPUTER APPLICATIONS (BCA) – DATA ANALYTICS

Suggested programme structure for the Under Graduate Programmes

[BCA, BCA (A.I & M.L, BCA (D.A)]

Semester	Course 1	Course 2	Course 3	Elective / Optional	Course	Language	Compulsory	Total Credit	Total Working hour
I	5 (3T+2P)	5 (3T+2P)	5 T			3+3	2	23	4+4+4+4+5+4+4+2=31
II	5 (3T+2P)	5 (3T+2P)	5T			3+3	2	23	4+4+4+4+5+4+4+2=31
III	5 (3T+2P)	5 (3T+2P)	5T	2		3+3		23	4+4+4+4+5+4+4+2=31
IV	5 (3T+2P)	5 (3T+2P)	5T	2		3+3	2	25	4+4+4+4+5+2+4+4+2= 33
V	8 [(2x3T) + 2P]	8 [(2x3T) + 2P]	8 [(2x3T) + 2P]				2	26	3+3+4+3+3+4+3+3+4+ 2=32
VI	3T	3T	3T		3T	Project work 12		24	3+3+3+3+24=36
								144	

Note:

- **Course1 and Course2: I to IV Semester: Theory 3 credit=4 contact hours & Practical 2 credit=4 contact hours**
- **Course3: I to IV Semester: Theory 5 credit=5 contact hours**
- **Course1, Course2 and Course3: V and VI Semester: Theory 3 credit=3 contact hours & Practical 2 credit=4 contact hours**
- **Elective/Optional: 2 credit=2 contact hours**
- **Languages: 3 credit=4 contact hours**
- **Compulsory: 2 credit=2 contact hours**

CURRICULUM STRUCTURE FOR BCA – DATA ANALYTICS

Semester I								
Sl. No	Course Code	Title of the Course	Category of Courses	Teaching Hours per Week	SEE	IA	Total Marks	Credits
1	BCA–1.1	Fundamentals of Information Technology	Theory	4	80	20	100	3
2	BCA –1.2	Fundamentals of Information Technology Lab	Practical	4	40	10	50	2
3	BCA –1.3	Problem Solving using C	Theory	4	80	20	100	3
4	BCA –1.4	C Programming Lab	Practical	4	40	10	50	2
5	BCA –1.5	Computational Mathematics	Theory	5	80	20	100	5
6		Language-I	Lang	4	80	20	100	3
7		Language-II	Lang	4	80	20	100	3
8		Constitutional Values	Compulsory	3	40	10	50	2
Sub - Total				32	520	130	650	23

Semester II								
Sl. No	Course Code	Title of the Course	Category of Courses	Teaching Hours per Week	SEE	IA	Total Marks	Credits
1	BCA–2.1	Data Structure using C	Theory	4	80	20	100	3
2	BCA–2.2	Data Structures Lab	Practical	4	40	10	50	2
3	BCA–2.3	Database Management System	Theory	4	80	20	100	3
4	BCA–2.4	Database Management System Lab	Practical	4	40	10	50	2
5	BCA –2.5	Computer Organization and Architecture	Theory	5	80	20	100	5
6		Language-I	Lang	4	80	20	100	3
7		Language-II	Lang	4	80	20	100	3
8		Environmental Studies	Compulsory	3	40	10	50	2
Sub - Total				32	520	130	650	23

Semester III								
Sl. No	Course Code	Title of the Course	Category of Courses	Teaching Hours per Week	SEE	IA	Total Marks	Credits
1		Language-I	Lang	4	80	20	100	3
2		Language-II	Lang	4	80	20	100	3
3	BCA – DA-3.1	Operating Systems	Core	4	80	20	100	3
4	BCA – DA-3.2	Object Oriented Programming using Java	Core	4	80	20	100	3
5	BCA – DA-3.3	Computer Networks	Core	5	80	20	100	5
6	BCA – DA-3.4	Operating Systems Lab	Practical	4	40	10	50	2
7	BCA – DA-3.5	Object Oriented Programming Lab	Practical	4	40	10	50	2
8	BCA – DA-3.6	A) Digital Marketing B) Web Content Management System C) DEVOPS	Elective	2	40	10	50	2
Sub – Total				31	520	130	650	23

Semester IV								
Sl. No	Course Code	Title of the Course	Category of Courses	Teaching Hours per Week	SEE	IA	Total Marks	Credits
1		Language-I	Lang	4	80	20	100	3
2		Language-II	Lang	4	80	20	100	3
3	BCA – DA-4.1	Python Programming	Core	4	80	20	100	3
4	BCA – DA-4.2	Statistical Computing using R	Core	4	80	20	100	3
5	BCA – DA-4.3	Data Warehousing and Data Mining	Core	5	80	20	100	5
6	BCA – DA-4.4	Python Programming Lab	Practical	4	40	10	50	2
7	BCA – DA-4.5	Data Analytics Lab	Practical	4	40	10	50	2
8	BCA – DA-4.6	A) Optimization Techniques for Analytics B) Internet Basics C) Object Oriented Analysis and Design	Elective	2	40	10	50	2
9	BCA – DA-4.7	Data Analytics using Excel	Compulsory	2	40	10	50	2
Sub – Total				33	620	180	800	25

Semester V								
Sl. No	Course Code	Title of the Course	Category of Courses	Teaching Hours per Week	SEE	IA	Total Marks	Credits
1	BCA –DA-5.1	Software Engineering	Core	3	80	20	100	3
2	BCA –DA-5.2	Artificial Intelligence	Core	3	80	20	100	3
3	BCA –DA-5.3	Business Intelligence and Analytics	Core	3	80	20	100	3
4	BCA –DA-5.4	Web Development	Core	3	80	20	100	3
5	BCA –DA-5.5	Machine Learning	Core	3	80	20	100	3
6	BCA –DA-5.6	Design Analysis and Algorithm	Core	3	80	20	100	3
7	BCA –DA-5.7	Artificial Intelligence and Machine Learning Lab	Practical	4	40	10	50	2
8	BCA –DA-5.8	Web Development Lab	Practical	4	40	10	50	2
9	BCA –DA-5.9	Algorithms Lab	Practical	4	40	10	50	2
10	BCA –DA-5.10	Data Visualization with Power BI and Tableau	Compulsory	2	40	10	50	2
Sub – Total				32	640	160	800	26

Semester VI								
Sl No	Course Code	Title of the Course	Category of Courses	Teaching Hours per Week	SEE	IA	Total Marks	Credits
1	BCA-DA-6.1	Natural Language Processing	Core	3	80	20	100	3
2	BCA-DA-6.2	Big Data Analytics	Core	3	80	20	100	3
3	BCA-DA-6.3	Multivariate Data Analysis	Core	3	80	20	100	3
4	BCA-DA-6.4	Principles of Cyber Security	Core	3	80	20	100	3
5	BCA-DA-6.5	Project Work	Project Work	24	300	100	400	12
Sub – Total				36	640	160	800	24