

Bachelor of Computer Applications (Honours) - (2023-2024)

Sem.	Semester Course Code, Course Name (L-T-P) Credits						Community Service	GP	Hrs. Per week			Credits
	L	T	P									
1	MAL153 Mathematics-I (3-1-0) 4	BCL103 Programming Fundamentals -I (2-0-4) 4	BSL102 Principles of Management (2-0-2) 3	CLL120 Human Values & Professional Ethics (2-0-0-) 2	BCV101 Skill Development -1 (1-0-2) 2	BCL110 Problem Solving and Design Thinking (2-0-2) 3	BCS101 CS-I	BCR118 GP – 1 1 Credit	12	1	10	19
2	MAL112 Basics of Statistics (3-1-0) 4	CHL100 Environmental Studies (3-0-0) 3	BCL104 Programming Fundamentals-II (2-0-4) 4	Foreign Language Elective 1 (1-2-0) 3	Open Elective – 1 (3-0-0) 3	CLL101 Effective Communication-I (1-0-2) 2	BCS102 CS-II (140Hrs)* 2 Credit	BCR119 GP- 2 1 Credit	13	3	6	22
BCT201 Summer Internship - I												4
Exit Option – 1 (UG Certificate)												
3	BCL201 Data Structures (3-0-2) 4	BCL203 DBMS (3-0-2) 4	PCL102 Psychology for living (2-1-0) 3	BCL205 Digital Electronics & Computer Architecture (3-0-2) 4	Program Elective-1 (2-0-4-) 4	CLL102 Effective Communication-II (1-0-2) 2	BCS201 CS-III	BCR218 GP – 3 1 Credit	14	1	12	22
4	BCL202 Computer Networks (3-0-2) 4	BCL204 Operating System (3-0-2) 4	Open Elective – 2 (3-0-0) 3	Program Elective-2 (2-0-4) 4	BCL206 Analysis and Design of Algorithms (3-0-2) 4		BCS202 CS-IV (140Hrs)* 2 Credit	BCR 219 GP-4 1 Credit	14	0	10	22
Summer	BCT301 Summer Internship - II											4
Exit Option – 2 (UG Diploma)												
5	BSL101 Entrepreneurshi p (2-0-2) 3	BCL303 Introduction to AI & ML (3-0-2) 4	BCL305 Software Engineering (3-0-2-) 4	Program Elective-3 (2-0-4-) 4	BCV301 Skill Development -2 (1-0-2) 2	BCD301 Project – 1 Semester at Industry/Startup Project (0-0-8) 4	BCS301 CS-V	BCR318 GP-5 1Credit	11	0	20	22
6	Program Elective-4 (2-0-4) 4	Open Elective-3 (3-0-0) 3	BCD302 Project – 2 Semester at Industry/Startup Project (0-0-12) 6				BCS302 CS-VI (140Hrs) 2 Credit	BCR319 GP-6 1Credit	5	0	16	16
BCA Degree												
7	MCL501 Data Communication and Networking (3-0-2) 4	CLL513 Professional Communication (2-1-0) 3	MCV501 Skill Based Course (1-0-2) 2	MAL616 Research Methodology (2-1-0) 3	MCD603 Dissertation – I (0-0-16) 8		MCS501 Community Service (CS)		8	2	18	20
8	MCP120 Seminar (0-0-4) 2	MCL502 Business Analytics (3-0-2) 4	Program Elective – 5 (3-0-2) 4	Program Elective – 6 (3-0-2) 4	MCD604 Dissertation – II (0-0-16) 8		MCS502 Community Service (CS) (140Hrs* 2 Credits)		14	1	12	24
<b>Total</b>									98	7	88	175

\* Students can utilize the summer/winter break period to complete the remaining 140 Community Service hours every year.

# For BCA degree with honours, students have to undergo the courses of MCA first year. In place of three courses – (MCL501, MCL505, MCL504 and MCL507) student can opt for research work. Equivalent credits can be transferred on successful completion of the research work. In place of MCD603 Dissertation-I and MCD604 Dissertation-II, students can opt for the courses of MCA first year or equivalent MOOC course.

- The University shall conduct introductory sessions in the 1<sup>st</sup> semester on soft skills, which are a set of transferable skills and key personal traits essential for personality development.
- The University shall conduct special sessions in the 4<sup>th</sup> semester to reinforce the learnings of introductory training sessions conducted in the first year.
- Two value-added courses over and above the programme scheme shall be offered during the 5<sup>th</sup> and 6<sup>th</sup> semesters to impart special skills to students for enhancing their employability.
- Advanced sessions on soft skills shall be conducted in the 7<sup>th</sup> semester to hone up the preparedness of students for placements and make them industry ready for national and international jobs.

	1 Year UG Certificate		2 Years UG Diploma		3 Years BCA Degree		4 Yr BCA Honours Degree	
Broad Category of Courses	Minimum Credits Requirement (UGC)	Existing Scheme	Minimum Credits Requirement (UGC)	Existing Scheme	Minimum Credits Requirement (UGC)	Existing Scheme	Minimum Credits Requirement (UGC)	Existing Scheme
Major - Core (Program Core + Compulsory Courses)	40 + 4 Credits Vocational Course in Summers	27	80 + 4 Credits Vocational Course in II yr Summers	54	60	65	80	80
Minor Stream (Program Electives)		0		8	24	26	32	34
Multidisciplinary (Open Electives)		3		9	9	12	9	12
Ability Enhancement Courses (AEC)		7		9	8	11	8	11
Skill Enhancement Courses (SEC)		2		2	9	7	9	9
Value Added Courses common for all UG		2		4	6 – 8	6	6 – 8	6
Industry Internship		4		8	2 – 4	8	2 – 4	8
Research Project / Dissertation		0		0	-	0	12	20
Total				45		94	120	135

## The overall credits structure of BCA Certificate (Exit Option 1)

Category	Credits
Major - Core (Program Core + Compulsory Courses)	80
Minor Stream (Program Electives)	34
Multidisciplinary (Open Electives)	12
Ability Enhancement Courses (AEC)	9
Skill Enhancement Courses (SEC)	9
Value Added Courses common for all UG	6
Industry Internship	8
Research Project / Dissertation	20
<b>Total</b>	<b>175</b>

### A. Programme Core (PC) + Compulsory Courses

S N	Code	Course Name	L-T-P	Credits
1.	MAL153	Mathematics -1	3-1-0	4
2.	BCL103	Programming Fundamentals – I	2-0-4	4
3.	BCL105	Programming Fundamentals – II	2-0-4	4
4.	MAL112	Basics of Statistics	3-1-0	4
5.	BCL201	Data Structures	3-0-2	4
6.	BCL202	Computer Networks	3-0-2	4
7.	BCL203	DBMS	3-0-2	4
8.	BCL204	Operating Systems	3-0-2	4
9.	BCL205	Digital Electronics & Computer Architecture	3-0-2	4
10.	BCL206	Analysis and Design of Algorithms	3-0-2	4
11.	BCL303	Introduction to AI and ML	3-0-2	4
12.	BCL305	Software Engineering	3-0-2	4
13.	BCL110	Problem Solving and Design thinking	2-0-2	3
14.	BSL101	Entrepreneurship	2-0-2	3
15.	BCL102	Principles of Management	2-0-2	3
16.	PCL102	Phycology for living	2-0-4	4
17.	CLL102	Effective Communication – I	2-1-0	2.5
18.	CLL101	Effective Communication – II	2-1-0	2.5
19.	MCL501	Data Communication and Networking	3-0-2	4
20.	CLL513	Professional Communication	2-1-0	3
21.	MAL616	Research Methodology	2-1-0	3
		<b>Total Credits</b>		<b>80</b>

## B. Programme Electives (PE) PE-1 to PE - 6

S. No.	Code	Course Name	L-T-P	Credits
<b>BCA with Specialization in Animation and Gaming</b>				
1	BCL211	Game Art Essentials	2-0-4	4
2	BCL222	Fundamentals of Web application development	2-0-4	4
3	BCL311	Basics of 3D Animation	2-0-4	4
4	BCL312	Foundations of 2D Game Development	2-0-4	4
<b>BCA with Specialization in Web Application Development</b>				
1	BCL221	UI / UX Design principles	2-0-4	4
2	BCL222	Fundamentals of Web application development	2-0-4	4
3	BCL321	Fundamentals of Mobile application development	2-0-4	4
4	BCL322	Software prototyping, usability & testing	2-0-4	4
<b>BCA with Specialization in Mobile Applications</b>				
1.	BCL213	Android and iOS Operating Systems	2-0-4	4
2.	BCL214	Flutter for Mobile App Development	2-0-4	4
3.	BCL313	Mobile Arch & app development	2-0-4	4
4.	BCL314	Mobile Security	2-0-4	4

Program Elective 5		Program Elective 6	
MCL511	Object Oriented Programming	MCL517	Cyber Security
MCL512	Web Technologies	MCL518	Soft Computing
MCL513	Cloud Computing	MCL519	Advanced Computer Architecture
MCL514	Computer Graphics and Multimedia	MCL520	Social Network Analysis
MCL515	Internet of Things	MCL521	Game Theory
MCL516	Network Security	MCL522	Theory of Computation

## C. Ability Enhancement Courses (AEC)

Foreign Language and open Electives				
11	CLL220	German – I	1-2-0	3
12	CLL200	French – I	1-2-0	3
13	CLL270	Spanish – I	1-2-0	3
		Open Elective -1	3-0-0	3
		Open Elective -2	3-0-0	3
		Open Elective -3	3-0-0	3

S. No.	Code	Course Name	L-T-P	Credits
1	ASL140	Environmental Studies	3-0-0	3
2	CLL120	Human Values and Ethics	2-0-0	2
4	BCS101 BCS102 BCS201	Community Service		6

	BCS202 BCS301 BCS302			
		<b>Total Credits</b>		11

#### D. Value Added Courses

S. No.	Code	Course Name	L-T-P	Credits
3	BCR118 BCR119 BCR218 BCR219 BCR318 BCR319	GP – 1 GP – 2 GP – 3 GP – 4 GP – 5 GP – 6		6
		<b>Total Credits</b>		6

#### E. Skill Enhancement

S. No.	Code	Course Name	L-T-P	Credits
1.	BCV101	Skill Deveoplement-1	1-0-2	2
2.	BCV301	Skill Development-2	1-0-2	2
3.	BCD301	Project – 1	0-0-8	4
4.	BCD302	Project – 2	0-0-12	6
5.	BCT201	Summer Internship – I	--	2
6.	BCT301	Summer Internship - II	--	3
		<b>Total Credits</b>		<b>19</b>

#### Outline of Choice based credit system (CBCS):

- 1 Programme Core:** A course, which should compulsorily be studied by a student as a core requirement is termed as a programme core course.
- 2 Programme Elective:** Elective courses may be offered by the main discipline/subject of study is referred to as Programme Elective. The University may also offer Programme related elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).
- 3 Generic (or Open) Elective:** An elective course generally chosen from an unrelated discipline/subject, with an intension to seek exposure is called a Generic (or Open) Elective.
- 4 Ability Enhancement Courses (AEC):** These are the courses based upon the content that leads to knowledge enhancement. They are English/Communication courses.
- 5 Skill Enhancement/Project/Dissertation:** The Project work/ Dissertation based on application of Mathematics, Computer applications, Research project and new innovative ideas.