

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,
BELAGAVI.**



Scheme of Teaching and Examinations and Syllabus

Bachelor of Computer and Applications (BCA)

(Effective from the Academic year 2024-25)

I SEMESTER											
Sl. No	Course	Course Code	Course Title BBCAL151A	Teaching Hours per Week			Examination				Credits
				Theory	SDA/Tutorial	Practical	Duration (Hrs)	CIE Marks	SEE Marks	Total Marks	
				L	SDA/T	P					
1	AEC	BBCA151A	Balike Kannada (MCQ)	02	-	--	01	50	50	100	2
		BBCA151B	Samskrutika Kannada (MCQ)								
2	AEC	BBCA152	Professional Communication Skills	02	-	--	03	50	50	100	2
3	PCC	BBCA103	Problem-solving using C Programming(K/E)	03	--	--	03	50	50	100	3
4	PCC	BBCA104	Computer Essentials (K/E)	03	--	--	03	50	50	100	3
5	PCC	BBCA105A	Fundamentals of Mathematics(A) (K/E)	03	--	--	03	50	50	100	3
		BBCA105B	Fundamentals of Accountancy(B) (K/E)								
6	AEC	BBCA156	Indian Knowledge System (K/E)(MCQ)	02	-	--	01	50	50	100	2
7	PCCL	BBCAL107	Programming in C Lab	01		02	03	50	50	100	2
8	PCCL	BBCAL108	Essentials of Computer Lab	01		02	03	50	50	100	2
9	VAC	BBCA109	Environmental studies (K/E) (MCQ)	00	02	-	01	50	50	100	1
TOTAL				17	02	04	27	450	450	900	20
AEC-Ability Enhancement Courses, PCC – Professional Core Courses, PCCL – Professional Core Course Laboratory, VAC – Value Added Courses. BCA105A- Fundamentals of Mathematics- This is for students other than those in the science stream at 10+2 level. BCA105B- for Science Stream students. SDA- Skill Development Activities. BCA151A- Balike Kannada(for non-Karnataka students) BCA151B- Samskrutika Kannada- (For Karnataka Students)											
At the beginning of the semester 21 days of the Induction Program o 11 days in the beginning of the 1 st semester and 10 days in the beginning of the 2 nd semester											

II SEMESTER											
Sl. No	Course	Course Code	Course Title	Teaching Hours per Week			Examination				Credits
				Theory	SDA/ Tutorial	Practical	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	SDA/T	P					
1	AEC	BBCA251	Indian / Foreign Language (MCQ for Particular Language – SEE)	02	-	--	01	50	50	100	2
2	AEC	BBCA252	Introduction To Scripting Languages (Theory)	02	-	--	03	50	50	100	2
3	PCC	BBCA203	Discrete Mathematical Structure	03	--	--	03	50	50	100	3
4	PCC	BBCA204	Fundamentals of Data Structure (K/E)	03	--	--	03	50	50	100	3
5	PCC	BBCA205	Unix and Shell Scripting	03	--	--	03	50	50	100	3
6	SEC	BBCA286	Fundamentals of Fintech (MCQ)	02	-	--	01	50	50	100	2
7	PCCL	BBCAL207	Unix and Shell Scripting Laboratory	01		02	03	50	50	100	2
8	PCCL	BBCAL208	Data Structure Using C Laboratory	01		02	03	50	50	100	2
9	VAC	BBCA209	Constitution of India(K/E)(MCQ)	00	02	--	01	50	50	100	1
TOTAL				17	02	04	28	450	450	900	20
AEC-Ability Enhancement Courses, PCC – Professional Core Courses, PCCL – Professional Core Course Laboratory, VAC – Value Added Courses BCA105A- Fundamentals of Mathematics- This is for students other than those in the science stream at 10+2 level. BCA105B- for Science Stream students. SDA- Skill Development Activities At the beginning of the semester 21 days of the Induction Program o 11 days in the beginning of the 1 st semester and 10 days in the beginning of the 2 nd semester											

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III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours per Week			Examination				Credits
				Theory	Practical/Seminar	Skill Development Activities (Hours are for Interaction between Faculty And students)	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	IPCC	BBCA301	Fundamentals of Java	02	02	--	03	50	50	100	4
2	PCC	BBCA302	Introduction to Python(K)	03	--	--	03	50	50	100	3
3	PCC	BBCA303	Database management System	03	--	--	03	50	50	100	3
4	PCC	BBCA304	Computer Networks	03	--	--	03	50	50	100	3
5	PCC	BBCA305	Operating System Concepts	03	-	--	03	50	50	100	3
6	PCCL	BBCAL306	Python Lab	01	02	--	03	50	50	100	2
7	PCCL	BBCAL307	Database management System Lab	01	02	--	03	50	50	100	2
8	AUD/AEC	BBCA388	Online Course E-Business from https://online.vtu.ac.in/course-details/E-Business								PP
TOTAL				16	06	00	21	350	350	700	20

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IV SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours per Week			Examination				Credits
				Theory	Practical/Seminar	Skill Development Activities (Hours are for Interaction between Faculty And students)	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	IPCC	BBCA401	PHP and SQL	02	02	--	03	50	50	100	4
2	PCC	BBCA402	Design and Analysis of Algorithms	03	--	--	03	50	50	100	3
3	PCC	BBCA403	Introduction to Data Analytics using Python	03	--	--	03	50	50	100	3
4	PCC	BBCA404	Software Engineering	03	--	--	03	50	50	100	3
5	PCC	BBCA405	Digital Entrepreneurship	03	--	--	03	50	50	100	3
6	PCCL	BBCAL406	Design and Analysis of Algorithms Laboratory	01	2	--	03	50	50	100	2
7	PCCL	BBCAL407	Data Analytics using Python Laboratory	01	02	--	03	50	50	100	2
8	MC	BBCA458	Yoga for a Healthy Life	00	02	--		100	--	100	0
TOTAL				16	08	00	21	450	350	800	20

Yoga is a MC-Mandatory Course (Non-credit). All students have to register for Yoga. Successful completion of the course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the Yoga activities. This course shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.

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V SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours per Week			Examination				Credits
				Theory	Practical/Seminar	Skill Development Activities (Hours are for Interaction between Faculty And students)	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	P/T	SDA					
1	PCC	BBCA501	Introduction to Artificial Intelligence	04	--	--	03	50	50	100	4
2	PCC	BBCA502	Introduction to Data Science	04	--	--	03	50	50	100	4
3	PCC	BBCA503	Cloud Computing	04	--	--	03	50	50	100	4
4	PEC	BBCA504X	Professional Elective Course 1	04	--	--	03	50	50	100	4
5	PROJ	BBCA585	Project Work	--	12	--	03	100	100	200	6
6	TS	BBCA586	Technical Seminar	--	02	--	03	100	--	100	2
Total				16	14	--		400	300	700	24

Professional Elective Course - 1	
Course Code BBKA504X	Course Title
BBKA504A	Advanced Java
BBKA504B	Object Oriented Modeling and Design
BBKA504C	Mobile Application Development

Project Work (BBKA585):

Project work is aimed at fostering research, practical application of knowledge, and innovation. The evaluation process follows these steps:

1. Selection and Approval of Project Work:

- Topic Selection: Students propose project topics, often in consultation with their faculty advisor.
- Approval Process: The proposed topic is submitted for approval by a project committee or department, ensuring alignment with academic standards and relevance.

2. Project Execution:

- Research and Development: Students carry out research, experiments, or development work as per the project plan.

3. Submission of the Project Report:

- Format and Guidelines: The report must follow the prescribed format by the university/department.

4. Evaluation Process:

- CIE procedure for Project Work:

The CIE marks shall be awarded by a committee consisting of the Head of the Department and a faculty member

of the Department who shall be the Guide. The CIE marks awarded for the project work shall be based on the evaluation of the project work Report, project presentation skill, and question and answer session in the ratio 50:25:25.

- SEE procedure for Project Work:

The SEE for project work will be conducted by the two examiners (internal and external) appointed by the University. The SEE marks awarded for the project work shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25.

5. Final Outcome:

- Marks Allocation: Typically, evaluation is a blend of internal (guided by the department) and external (examiner's input) assessments, distributed over the report, presentation, and viva.
- Pass Requirement: Students must meet a minimum threshold to pass, as per university policies.
- Periodic Reviews: Regular progress reviews are conducted by faculty to monitor the project's progress and provide feedback.
- Documentation: Students maintain a detailed record of their methodology, data, results, and analysis.

Technical Seminar (BBCA586)

Students can present the seminar based on the new technologies. The CIE marks awarded for the Seminar shall be based on the evaluation of the Report, Presentation skill, and performance in the question and answer session in the ratio 50:25:25. Seminar shall be considered for the award of degree. Those, who do not take up/ complete shall be declared as fail in the seminar course and have to complete the same during the subsequent semester.

Internship (BBCA684)

Students shall enroll for the Internship (BBCA684) immediately after completion of 5th semester examination and before starting the 6th semester.

Sl. No	Course	Course Code	Course Title	Teaching Hours per Week			Examination				Credits
				Theory	Practical/Seminar	Skill Development Activities	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	BBCA601	Data Mining and Data Ware housing	04	--	--	03	50	50	100	4
2	PEC	BBCA602X	Professional Elective Course 2	04	--	--	03	50	50	100	4
3	PEC	BBCA603X	Professional Elective Course 3	04	--	--	03	50	50	100	4
4	INT	BBCA684	Internship (4 weeks – min 24 hours per week)	--	--	--	03	100	100	200	4
Total				12	06	--		250	250	500	16

Professional Elective Course - 2		Professional Elective Course - 3	
Course Code BBCA602X	Course Title	Course Code BBCA603X	Course Title
BBCA602A	Cyber Security	BBCA603A	Wireless Communication
BBCA602B	Cryptography and Network Security	BBCA603B	Business Intelligence
BBCA602C	Computer Graphics with OpenGL	BBCA603C	NOSQL

The teaching-learning duration of VI Semester is split into two phases:

- **Phase 1:** Internship (First 4 weeks duration – 24 hours per week)
- **Phase 2:** PCC and PEC courses (Next 10-12 weeks duration)

Internship (BBCA684)

Students shall enroll for the internship immediately after completion of 5th semester examination and before starting the 6th semester.

Internship is carried out in the engineering industry, companies, manufacturing units, startups, business, IT industry. The topic involved may be technical, production-related tasks, live projects, or innovative activities. Internship refers to the position of a student as trainee or a temporary (or unconfirmed) employee, who works in an organization, with or without pay, in order to gain work experience or satisfy requirements for a qualification. It is a structured, supervised professional experience in an industry, research organization, or community setting. Students taking up internship may be with or without stipend. Internships play a vital role in bridging the gap between theoretical education and professional practice. In general, internships serve as a crucial component of professional education by providing experiential learning, industry readiness, and holistic skill development, ultimately producing competent engineers or entrepreneurs. Apart from these, it develops professional ethics, work culture awareness and communication skills.