Maulana Abul Kalam Azad University of Technology, WB
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Syllabus of BCA
Effective from academic session 2023-24

Graduate Attribute:

Bachelor of Computer Applications (BCA) programs typically aim to equip students with a well-rounded set of skills and knowledge in the field of computer science and applications. The Graduate Attributes (GA), which characterize the information, competencies, values, and abilities that students acquire in order to develop holistically and contribute to society. These characteristics include traits that can be transferred beyond the sphere of study into the national and international realms and are cultivated through curricular, co-curricular, and extra-curricular initiatives.

1. **Technical Competence:** Graduates should have a solid foundation in computer science concepts, programming languages, software development methodologies, and technical tools commonly used in the industry.
2. **Problem-Solving Skills:** Graduates should be capable of analyzing complex problems, designing effective solutions, and implementing these solutions using appropriate programming languages and technologies.
3. **Software Development:** Graduates should be skilled in the entire software development lifecycle, including requirements analysis, design, implementation, testing, deployment, and maintenance of software applications.
4. **Programming Proficiency:** Graduates should have expertise in at least one or more programming languages and be capable of writing efficient, maintainable, and well-documented code.
5. **Database Management:** Graduates should understand database design principles, be familiar with database management systems, and be able to design and manage databases for various applications.
6. **Communication Skills:** Graduates should possess effective communication skills, including the ability to articulate technical concepts clearly to both technical and non-technical stakeholders.
7. **Teamwork and Collaboration:** Graduates should be able to work effectively as part of a team, demonstrating the ability to collaborate, share ideas, and contribute positively to group projects.
8. **Ethical and Professional Behavior:** Graduates should understand the ethical implications of technology and demonstrate professional conduct in their work, respecting intellectual property rights, privacy, and security considerations.
9. **Continuous Learning:** Graduates should recognize the dynamic nature of the field and the need for ongoing learning and skill development to stay up-to-date with emerging technologies and industry trends.
10. **Adaptability:** Graduates should be adaptable to changing technological landscapes and be able to apply their foundational knowledge to new and evolving challenges.
11. **Critical Thinking:** Graduates should be capable of evaluating information critically, making informed decisions, and applying logical reasoning to solve complex problems.
12. **Project Management:** Graduates should have a basic understanding of project management principles, enabling them to manage time, resources, and tasks effectively within software development projects.
13. **User-Centered Design:** Graduates should appreciate the importance of designing software applications with user experience in mind, ensuring usability, accessibility, and user satisfaction.

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Curriculum Structure

FIRST SEMESTER

Sl No.	Subject Type	Subject Code	Subject Name	Credit Point	Credit Distribution		
					L	P	T
1	DSC	BCAC101	Digital Electronics	3	3		
2		BCAC191	Digital Electronics Lab	2		2	
3		BCAC102	Programming for Problem Solving through C	3	3		
4		BCAC192	Programming for Problem Solving Lab	2		2	
5	DSE	MIM101	Principles of Management	3	3		
6	GE		Any one from GE baskets A or D	3	3		
7	AECC	AECC101	English & Professional Communication	2	2		
8	SEC	SEC181	Life Skills & Personality Development	2		2	
9	VAC	VAC181 A/ B/C	Yoga/ Health & Wellness/ Sports	2		2	
Total Credit				22			

SECOND SEMESTER

Sl No.	Subject Type	Subject Code	Subject Name	Credit Point	Credit Distribution		
					L	P	T
1	DSC	BCAC201	Computer Architecture	3	3		
2		BCAC291	Computer Architecture Lab	2		2	
3		BCAC202	Basics of Web Design Using Html, CSS, Java Script	3	3		
4		BCAC292	Basics of Web Design Using Html, CSS, Java Script Lab	2		2	
5	DSE		Any one from Minor in Management Basket	3	3		
6	GE		Any one from GE baskets B or E	3	3		
7	AECC	AECC201	Modern Indian Languages and Literature	2	2		
8	SEC	SEC281	IT Skills	2		2	
9	VAC	VAC281A/ B/C/D	Critical Thinking/ NSS/ Mental Health/Environmental Studies	2		2	
Total Credit				22			

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THIRD SEMESTER

Sl No.	Subject Type	Subject Code	Subject Name	Credit Point	Credit Distribution		
					L	P	T
1	DSC	BCAC301	Python Programming	3	3		
2		BCAC391	Python Programming Lab	2		2	
3		BCAC302	Data Structure through C	3	3		
4		BCAC392	Data Structure Lab	2		2	
5	DSE		Any one from Minor in Management Basket	4	3		1
6	GE		Any one from GE baskets C or F	3	3		
7	AECC	AECC 301	The Constitution, Human Rights and Law	2	2		
8	SEC	SEC 381	Understanding basics of Cyber Security	2		2	
Total Credit				21			

FOURTH SEMESTER

Sl No.	Subject Type	Subject Code	Subject Name	Credit Point	Credit Distribution		
					L	P	T
1	DSC	BCAC401	Data Base Management System	3	3		
2		BCAC491	DBMS Lab	2		2	
3		BCAC402	Operating System	4	3		1
4		BCAC403	Software Engineering	4	3		1
5	DSE		Any one from Minor in Management Basket	4	3		1
6			Any one from Minor in Management Basket	4	3		1
7	AECC	AECC 401	Society Culture and Human Behavior	2	2		
Total Credit				23			

FIFTH SEMESTER

Sl No.	Subject Type	Subject Code	Subject Name	Credit Point	Credit Distribution		
					L	P	T
1	DSC	BCAC501	PHP WITH MYSQL	3	3		
2		BCAC591	PHP WITH MYSQL LAB	2		2	
3		BCAC502	Object Oriented Programming with Java	3	3		
4		BCAC592	Object Oriented Programming with Java Lab	2		2	
5	DSE		Any one from Minor in Management Basket	4	3		1
6			Any one from Minor in Management Basket	4	3		1
7	SEC	SEC581	Internship	4		4	
Total Credit				22			

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SIXTH SEMESTER

Sl No.	Subject Type	Subject Code	Subject Name	Credit Point	Credit Distribution		
					L	P	T
1	DSC	BCAC601	Advance Java With Web Application	3	3		
2		BCAC691	Advance Java With Web Application Lab	2		2	
3		BCAC602	Unix and Shell Programming	3	3		
4		BCAC692	Unix and Shell Programming Lab	2		2	
5		BCAC603	Networking	4	3		1
6	DSE		Any one from Minor in Management Basket	4	3		1
7			Any one from Minor in Management Basket	4	3		1
Total Credit				**22**			

SEVENTH SEMESTER

Sl No.	Subject Type	Subject Code	Subject Name	Credit Point	Credit Distribution		
					L	P	T
1	DSC	BCAC701A /BCAC701B /BCAC701C /BCAC701D	Data Mining & Data Warehousing/Machine Learning / Pattern Recognition / Algorithm Analysis	3	3		
2		BCAC791A /BCAC791B /BCAC791C /BCAC791D	Data Mining & Data Warehousing Lab /Machine Learning Lab / Pattern Recognition Lab/ Algorithm Analysis Lab	2		2	
3		BCAC 702	Research Methodology	3	3		
4		BCAC792	Research Methodology Lab	2		2	
5		BCAC703	Cyber Security	4	3		1
6	DSE		Any one from Minor in Management Basket	4	3		1
7			Any one from Minor in Management Basket	4	3		1
Total Credit				**22**			

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EIGHTH SEMESTER

Sl No.	Subject Type	Subject Code	Subject Name	Credit Point	Credit Distribution		
					L	P	T
1	DSC	BCAC801A/ BCAC801B/ BCAC 801C	Cloud Computing / Block Chain Technology / Artificial Intelligence	3	3		
2		BCAC891A/ BCAC891B/ BCAC 891C	Cloud Computing Lab/ Block Chain Technology Lab / Artificial Intelligence Lab	2		2	
3		BCAC802	Statistical Analysis with R Programming	3	3		
4		BCAC892	Statistical Analysis with R Programming Lab	2		2	
5	SEC	SEC881	Research Project	12		12	
Total Credit				22			