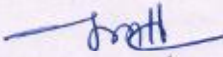# KARNATAK UNIVERSITY
DHARWAD

Regulations and Syllabus

for the Programme

BACHELOR OF COMPUTER APPLICATIONS (BCA)

(I TO VI Semester)

Revised Syllabus

As Discipline Specific Course (DSC)

Generic Elective (GE) and

Skill Enhancement Course (SEC)

Under

Choice Based Credit System

From 2020-21 and Onwards

Co - ordinator
IQAC
CSI College of Commerce,
Dharwad.

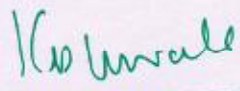**PRINCIPAL**
C.S.I. COLLEGE OF COMMERCE
DHARWAD (KARNATAKA)

KARNATAK UNIVERSITY DHARWAD

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Regulations Governing Under – Graduate Programmes in the

Faculty of Science & Technology under Choice Based Credit System

(As per Section 44(1)(c) of K.S.U. Act 2000)

1. TITLE AND COMMENCEMENT

a. These regulations shall be called "Regulations governing the acts of the Choice Based Credit System (CBCS) for under graduate programmes (General)" of Karnatak University, Dharwad.

b. These regulations shall be as per section 44(1)(c) of K.S.U. Act 2000 for introduction of courses.

c. As per Section 44(3) of K.S.U. Act 2000, these Regulations shall come into effect from the academic year: 2020-21 after H.E. the Chancellor's assent.

The sections with titles of Regulations for Under Gradate Programmes (General)

2. UNDER GRADUATE PROGRAMME (U. G. Degrees)

Bachelor of Computers Applications (**B.C.A**.): 06 semesters

3. PROGRAMME STRUCTURE

3.1: BCA programme shall have three components, Viz., Discipline Specific Courses (DSC), Elective Courses (EC), and Ability Enhancement Courses (AEC) as given in Annexures-1 (Course means subject/paper).

a. DSC: DSC are compulsory core courses of the programme.

b. EC: Elective courses may have three categories' viz., Discipline Specific Elective (DSE) Course, Dissertation/Project and Generic Elective (GE) Course.

   i. DSE: Elective courses offered under the main discipline/subject of study are referred to as Discipline Specific Elective (DSE).

   ii. Dissertation/Project: An elective course designed to acquire special/ advanced knowledge, such as supplement study/support study to a project work, and a candidate study such a course on his/her own with an advisory support by a teacher/faculty member is called Dissertation/project.

c. Ability Enhancement Courses (AEC): The Ability Enhancement Courses (AEC) may be of two kinds: i) Ability Enhancement Compulsory Courses (AECC) and ii) Skill Enhancement Courses (SEC).

i. Ability Enhancement Compulsory Courses (AECC): Environmental Science, Indian constitution, English Communication and Modern Indian languages (MIL) Communications.

P.S:. 1) A deaf / spastic /mentally retarded/learning deficiency student shall be exempted from learning any one of the languages like English or MIL.
2) MIL means any one language mentioned in VIII schedule of Indian Constitution.

ii. Skill Enhancement Courses (SEC): These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge and should contain theory and lab/hands-on training/ fieldwork .

3.2: Programme shall have two components (L: T/P): i) Lecturing (L) and ii) Tutorial (T) for non practical subjects and Practical (P) for practical subjects. Tutorial consists of participatory discussions, seminar presentations, desk work etc by the students of the respective subjects.

 P.S: There shall not be a tutorial for Practical subjects

3.3: Credit system of the programme: BCA programme shall have 144 credits for 06 semesters. Credit means the unit by which a course is measured.

a. 1 hour lecture or 1 hour tutorial of session per week is equal to 1 credit and that of 2 hours practical is equal to 1 credit. Credit for each course shall be decided by BoS.

b. Course (subject) of 3 to 6 credits each shall be evaluated for 100 marks and that of less than 3 credits including practical shall be evaluated for 50 marks. Further, the project work /dissertation shall have 2 credits and be evaluated for 50 marks.

4: WORKLOAD FOR TEACHERS

4.1: Each theory session may have 40 students extendable to 45 students for BCA program Irrespective of DSC, DSE, SEC, and AEC in the class rooms.

4.2: There shall be one teacher for first 15 students, 02 teachers up to 27, 03 teachers up to 36 and 4 teachers up to 46 students in a practical batch.

4.3: In general there shall be

i. One hour theory class per week is equal to one hour work load per week.
ii. One hour tutorial per week is equal to one hour work load per week.
iii. One hour practical class per week is equal to one hour work load per week.

5. ADMISSION PROCEDURE FOR BCA PROGRAMME

5.1: Invitation of Applications: University shall issue a notification for admission to various U G Programmes for all odd semesters soon after declaration of PUC II year / 10+2 results,

a. Notification shall include eligibility for admission to different programmes, detailed fee structure, calendar of academic events for odd and even semesters of the academic year, last date for admission with or without panel fees, remittance of fees to University etc.
b. Admissions shall be purely based on merit cum reservation as per the norms of Government of Karnataka issued from time to time.
c. Academic year normally commences in the month of June every year. Exact date for commencement of academic year shall be decided by the University.
d. Affiliated colleges shall admit the students for each programme not exceeding the approved number of students. Hence, prior approval in this connection from University is mandatory.

5.2: ELIGIBILITY:

A candidate who has passed two years Pre University Course (PUC) Examination conducted by Pre University Board, Government of Karnataka, Bengaluru or 10+2 Examination conducted by CBSE or equivalent examinations by other states or any other recognized Boards / Departments shall be eligible for admission to first semester BCA Programme. Further,

a. For B.C.A. Programme, a candidate of PUC / 10+2 with Science or commerce with Mathematics / Business Mathematics / Accountancy/ Computer Science or 3 years Diploma with Computer Science / information Science or 2 years JOC / ITI with Computer Science shall be eligible.

5.3: Admissions for higher Semesters:

a. BCA Programme shall be carryover system.

b. 75% attendance shall be mandatory for each semester and for each paper to appear for semester end examination. Further, 20% attendance shall be condoned for the students involved in co curricular/ curricular activities through NCC/NSS/ Sports/ Cultural activities/ Study tours/ field work/ attending seminars with the due permission from the Principal in writing.

c. A candidate shall be eligible to move to higher semester even if the candidate passes / fails in such semester end examination conducted by the University.

d. If the candidate fails to appear for the semester end examination but make application to appear for the examination by maintaining 75 % attendance is also eligible to get the admission to immediate next higher semester admission.

P.S: 1) Mere submission of application by the candidate to appear for examination without maintaining 75% attendance shall not be eligible for higher semester. 2) If candidate maintains 75% attendance but fails to submit the application to appear for semester end examination shall not be eligible for higher semester admission.

e. If the candidate appears for I semester end examination and discontinued for II semester and wishes to take admission for II semester in future, such candidates shall not be allowed for II semester directly. Such candidate shall again get the admission to I semester only by surrendering his/her I semester marks card to University. This is also applicable to other even semesters like IV and VI semesters wherein candidate shall get admission to III semester and V if discontinued to IV and VI semesters respectively.

f. If the candidate appears for II semester end examination and discontinued for III semester and wishes to take admission for IV semester in future, such candidates shall not be allowed for IV semester. Such candidate shall again get the admission to III semester as per University schedule. This is also applicable to other odd semester like V semester wherein candidate gets admission to V semester if discontinued at VI.

g. A candidate who does not satisfy the requirement 75% attendance even in one course (subject / paper) shall not be permitted to take the whole University examination of that semester and he/she shall seek re-admission to that Semester in a subsequent year as per University schedule.

5.4: Medium of instruction: English

5.5: Change of Programme:

Every U. G. Programme is specific in nature and hence, there shall not be any provision to change the programme.

5.6: Change of subject:

The MIL subject studied by the candidate in I semester shall be the same for all other semesters and hence, there shall not be any provision to change the MIL subject.

5.7: Change of College/ Transfer

a. Candidate shall be permitted for change of college only for the odd semesters by admitting within the stipulated period mentioned in the admission notification with the due consent from both the colleges. There shall not be any provision for

transfer / change of college for even semesters. Further, lower semester examination failure / MPC candidates are not eligible for transfer / change of college within the Karnatak University's affiliated colleges.

b. The same shall be applicable for the candidate seeking transfer from the colleges of other University within or outside the state or country by producing the eligibility certificate issued by Karnatak University with the confirmation of similarity of the programmes with each other. Other conditions shall be same as in 5.7(a).

c. Such transfer of admission shall be within the intake capacity of the respective class/ subject of the respective College.

6: EXAMINATION

6.1: Course (subject) of 3 to 6 credits each shall be evaluated for 100 marks and that of less than 3 credits including practical shall be evaluated for 50 marks. Further, the project work /dissertation shall have 6 credits and be evaluated for 100 marks.

6.2: There shall be a continuous assessment mode for the student. For this purpose, semester examinations are divided in to two components viz.,

a. Internal assessment written examinations conducted at college level for 20% of maximum marks allotted for each course (paper/subject) and

b. Semester end written examination conducted by University after 16th week of the commencement of every semester for 80% of maximum marks allotted for each course (paper/subject).

6.3: Internal assessment (IA) examinations:

a. **Theory Papers:** The College shall conduct IA examination for theory subjects in the 8th week for 10% and 12th week for remaining 10% of maximum marks allotted for each paper/subject. Duration of examination shall be 1hr. each.

b. **Practical:** The College shall conduct IA examination for practical paper in the 14th week for 20% of maximum marks allotted for each paper/subject. Duration of examination shall be 3hr.

c. **Project work /dissertation:** The College shall conduct IA examination for Project work /dissertation in the 14th week for 20% of maximum marks allotted for each Project work /dissertation. Duration of examination shall be 1hr.

d. Concerned teacher shall display the marks on notice board within 4 days after IA examination and allow the student for verification of IA Booklet if he wishes.

Grievances, if any, shall be solved by the concerned teachers, further if any by the Principal/ representative of Principal as per internal mechanism of the College.

e. There shall not be any provision for makeup examination for IA examinations for improvement of IA marks or for remaining absent. However, IA exam shall be conducted for the students who remained absent due to participation in the events related to co curricular / curricular activities conducted by recognized organizations.

f. College shall submit the IA marks to the University if student satisfies 75% attendance in the semester and shall be eligible to appear for semester end examination.

6.4: Semester end examination:

Semester end examination shall be conducted by University after 16th week of the commencement of every semester for 80% of maximum marks allotted for each paper. Further, the University shall conduct the semester end examination of the respective semesters only; may be odd or even but not both odd and even semesters simultaneously unless specified otherwise.

a. Duration of theory examination shall be 03 hours for 100 marks subject/ paper/ course (including IA marks) having the credit 3 to 6.

b. Duration of theory examination shall be 1.5 hours for 50 marks subject /paper / course(including IA marks) having the credit less than 3.

c. Duration of practical examination shall be 3 hours for 50 marks subject /paper / course(including IA marks) having the credit less than 3.

d. BoS in consultation with the concerned faculty shall decide the pattern of question paper for uniformity for all the core courses and elective courses.

e. Question papers shall be prepared by team of members of respective Board of Examiners (BoE).

f. Concerned BoE shall decide the scheme of valuation of both theory and practical course papers.

g. There shall be a single valuation for theory papers from the members of concerned BoE under the supervision of moderator who is in turn under the supervision of Chairman of BoE.

h. Practical / evaluation of project / dissertation work shall be conducted before the commencement of theory examination at the concerned colleges by two

examiners; one from the same college as internal examiner and other from other colleges appointed by University as external examiner. Further, there may be two external examiners but not two internal examiners to conduct the examination. A pair of examiners shall conduct practical examination for two batches par day having maximum 12 students in each batch.

6.5: Passing criteria

a. Candidate has to score 40% in each course (subject) including the IA marks for passing the course (subject) subject to the condition that:

   i. No minimum marks or separate passing for the IA examination, but candidate has to score minimum 40% from the semester end examination for its 80% of the maximum marks and fulfils the minimum 40% for maximum marks of the course (subject) (Ex. for 100 marks paper; 20 IA + 80 sem end exam and hence, minimum 32 marks for sem end exam). If candidate scores 40% by cumulating marks from IA and semester end examination but fails to score 40% from the semester end examination, such candidate shall be declared fail.

   ii. If the course (subject) is having both theory and practical, candidate has to pass both theory and practical independently. If the candidate fails in Practical and passes in theory examination, such candidate shall reappear for practical examination only and vice versa.

   iii. In all cases of failure in particular course (subject), IA marks shall be protected and carried forward; and the candidate need not reappear for IA examinations in such cases.

b. On successful scoring of minimum 40% in all courses (Subject), the candidate shall be declared pass in the programme in that semester.

c. On successful scoring of minimum 40% in all courses (Subject) and all the semesters, the candidate shall be declared pass in the entire programme.

6.6: Percentage and Grading

a. If P is the percentage of marks secured (IA + semester end score) by the candidate in a course(subject) which is rounded off to the nearest integer, the grade(G) earned by the candidate in that course(subject) will be given as below:

Percentage(P)	Grade(G)	Percentage(P)	Grade(G)
40 – 49	5.0	75 – 79	8.0
50 – 59	6.0	80 – 84	8.5
60 – 64	6.5	85 – 89	9.0
65 – 69	7.0	90 – 94	9,5
70 – 74	7.5	95 – 100	10.0

Grade point of less than 5 shall be considered as fail in the course (subject). Hence, P=0 and G=0 for the absent also.

b. A student's level of competence shall be categorized by grade point (GP), Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) of the programme.

c. Semester Grade Point Average (SGPA): The SGPA is a ratio of sum of the number of Credit grade points scored from all the courses (subject) of given semester to the total credits of such semester in which the candidate studied. (Credit grade points of each course (subject)= Credit x GP)

d. Cumulative Grade Point Average (CGPA): It is calculated as below for 6 semester programme:.

$$CGPA = \frac{\{(Credit_1 * SGPA_1) + (Credit_2 * SGPA_2) + (Credit_3 * SGPA_3) + (Credit_4 * SGPA_4) + (Credit_5 * SGPA_5) + (Credit_6 * SGPA_6)\}}{\text{Total credits of programme (sum of credits of all semesters)}}$$

e. After studying and passing all the credits prescribed for the programme the degree shall be awarded with CGPA score and class distinguishing as second class, first class, and distinction along with grade letter as under.

CGPA of the Programme (UG)	Class Obtained	Grade Letter
9.50 to 10.00	Distinction	A++
9.00 to 9.49		A+
8.00 to 8.99		A
7.00 to 7.99	First Class	B+
6.00 to 6.99		B
5.00 to 5.99	Second Class	C
Less than 5.00	Fail	D

6.7. CRITERIA FOR AWARD OF DEGREE

On successful scoring of minimum 5 grade points in all courses of the programme, the respective degree shall be awarded for the candidates. The University shall issue the final grade card (Marks card) consisting of grade points along with marks of all courses successfully completed, SGPA for all the semesters, CGPA with Grade letter of the entire programme and Class obtained.

The degree shall be awarded in the Annual / Special convocation. The Degree certificate shall consist of CGPA of the programme and Class obtained.

6.8: Recounting, revaluation, challenge valuation, photo copying of answer papers

There shall be provision for recounting of marks, revaluation, challenge valuation and photo copying of answer papers. The University shall invite applications for such purpose immediately after announcing the results for every semester by giving 10 days time to apply for the same online as per the existing ordinance and regulations and process the same accordingly.

6.9: Rank and Gold medals.

Students shall be considered for Ranks and/or Gold medals for only those who are completing all the credits in 6 semesters (6 semesters Programme) without break in the examination. However, this is not applicable for the award of classes like, second/first class/ distinction to the students.

6.10: Makeup Examination.

a. There shall be no immediate makeup examination for all semesters to the courses where candidate failed to score minimum 40% for semester end examination unless specified otherwise as in (c).
b. However, such candidate shall appear for examination during the regular schedule of examination conducted by the University.
c. There shall be a makeup examination for the V and VI semesters immediately after declaring the final semester results of the programme.

7: Provision for improvement of the marks (Grade Point)

Improvement of the marks (Grade Point): There shall be a provision for candidates to reappear for the examination for the concerned course of theory papers only (subject) in which candidate wishes for improvement of his/ her grade point of SGPA in general and CGPA in total of the programme subject to the condition that:

a. The candidate shall be eligible to reappear for improvement of grade points only after successfully passing the programme.

b. The candidate may opt for the examination for any number of courses (subject / paper) of the programme for improvement of grade point but not more than three times for each course (subject / paper) as per the prevailing syllabus of the examination conducted in the regular schedule of University examinations.

c. All such provisions are there within 03 years from successful completion of the programme but not exceeding the period of double the duration of completion of the programme.

d. In all such cases grade points are considered if there is a progress in such improvements, otherwise original grade points shall be retained.

e. No such candidates shall be eligible for the award of Rank, Gold Medal, Cash Prize, etc.

8: Duration for completion of the U. G. Programme

Minimum duration for completion of BCA UG Programme shall be 3 years from the date of admission to I semester, but the maximum duration shall be 6 years, i.e., double the duration of programme.

9: REPEAL AND SAVINGS FOR UG PROGRAMMES

All the existing Regulations governing three years Bachelor degree programme in the discipline of Science under semester or any ordinances or regulations or guidelines issued or adopted earlier by the University in this matter for constituent and affiliated colleges of Karnatak University are hereby repealed. However, the above Regulations shall continue to be in force for the students who have been admitted to the degree programme concerned before the enforcement of these new regulations.

Provided that the said repeal shall not affect the previous operation of the said regulations / ordinances or anything duly done or suffered there under or affect any right, liability or obligation acquired, accrued or incurred under the said regulations.

10: Removal of Difficulties:

Any issue not specifically mentioned in these Regulations shall be decided by the Vice Chancellor as per K.S.U 2000 Act.

BCA Programme structure under CBCS

Semester	*Core DSC Course	DSC L+T+P	DSC Credit	Elective **DSE Course	DSE L+T+P	DSE Credit	SEC Course	SEC L+T+P	SEC Credit	AECC Course	AECC L+T+P	AECC Credit	Total Credits
I	DSC-1A	4+0+4	4+2=6							English-1	2+1+0	2+1=3	26
	DSC-2A	4+0+4	4+2=6							MIL-1	2+1+0	2+1=3	
	DSC-3A	4+2+6	4+2=6							ENVIRONMENTAL SCIENCE	2+0+0	2+0=2	
II	DSC-1B	4+0+4	4+2=6							English-2	2+1+0	2+1=3	26
	DSC-2B	4+0+4	4+2=6							MIL-2	2+1+0	2+1=3	
	DSC-3B	4+2+0	4+2=6							CONSTITUTION OF INDIA	2+0+0	2+0=2	
III	DSC-1C	4+0+4	4+2=6							English-3	2+1+0	2+1=3	26
	DSC-2C	4+0+4	4+2=6							MIL-3	2+1+0	2+1=3	
	DSC-3C	3+1+0	3+1=4										
	DSC-4C	3+1+0	3+1=4										
IV	DSC-1D	4+0+4	4+2=6							English-4	2+1+0	2+1=3	26
	DSC-2D	4+0+4	4+2=6							MIL-4	2+1+0	2+1=3	
	DSC-3D	3+1+0	3+1=4										
	DSC-4D	3+1+0	3+1=4										
V	DSC-1E	4+0+2	4+2=6	DSE-1E	3+1+0	3+1=4	SEC-1E	0+0+4	2				20
				DSE-2E	3+1+0	3+1=4							
				DSE-3E	3+1+0	3+1=4							
VI	DSC-1F	4+0+2	4+2=6	DSE-1F	3+1+0	3+1=4	SEC-1F	0+0+4	2				20
				DSE-2F	3+1+0	3+1=4							
				DSE-3F	3+1+0	3+1=4							
TOTAL			88			24			04			28	144

L+T+P= Lecturing in Theory + Tutorial + Practical Hours per Week (no tutorial for practical subject).

* Each semester may have more than three core (DSC) subjects but not exceeding 18 credits for each semester.

** Each DSE shall have at least two papers and student shall choose any one paper from each DSE.

Bachelor of Computers Applications (BCA) Programme structure under CBCS; Effective from 2020-21

SYLLABUS

SEMESTER - I

Course	Paper Code	Paper Title Theory/Practical	Credits	No. of Hrs/ Week Theory/ Practical	Total Hours	Duration of Exam in Hrs Theory/ Practical	Internal Assessment Marks Theory/ Practical	Marks for Final Exam Theory/ Practical	Total Marks
AECC	BCA-1.1	English – 1	3	3	45	3	20	80	100
AECC	BCA-1.2	MIL -1	3	3	45	3	20	80	100
AECC	BCA-1.3	ENVIRONMENTAL SCIENCE	2	2	30	1.5	10	40	50
DSC	BCA-1.4	Computer Concepts & C-Programming	4 + 0	4	48	3	20	80	100
DSC	BCA-1.5	Introduction to Linux	4 + 0	4	48	3	20	80	100
DSC	BCA-1.6	Fundamentals of Mathematics	4 + 2	6	48	3	20	80	100
DSC	BCA-1.7	C-Programming LAB	2	4	48	3	10	40	50
DSC	BCA-1.8	Linux LAB	2	4	48	3	10	40	50
		Total	26	30			130	520	650

SEMESTER -II

Course	Paper Code	Paper Title Theory/Practical	Credits	No. of Hrs/ Week Theory/ Practical	Total Hours	Duration of Exam in Hrs Theory/ Practical	Internal Assessme nt Marks Theory/ Practical	Marks for Final Exam Theory/ Practical	Total Marks
AECC	BCA-2.1	English – 2	3	3	45	3	20	80	100
AECC	BCA-2.2	MIL -2	3	3	45	3	20	80	100
AECC	BCA-2.3	CONSTITUTION OF INDIA	2	2	30	1.5	10	40	50
DSC	BCA-2.4	Fundamentals of Algorithms	4 + 0	4	48	3	20	80	100
DSC	BCA-2.5	Numerical & Statistical Methods	4 + 0	4	48	3	20	80	100
DSC	BCA-2.6	Fundamentals of Digital Logic	4 + 2	6	48	3	20	80	100
DSC	BCA-2.7	Algorithms LAB	2	4	48	3	10	40	50
DSC	BCA-2.8	Numerical & Statistical Methods LAB	2	4	48	3	10	40	50
		Total	26	30			130	520	650

SEMESTER -III

Course	Paper Code	Paper Title Theory/Practical	Credits	No. of Hrs/ Week Theory/ Practical	Total Hours	Duration of Exam in Hrs Theory/ Practical	Internal Assessme nt Marks Theory/ Practical	Marks for Final Exam Theory/ Practical	Total Marks
AECC	BCA-3.1	English – 3	3	3	45	3	20	80	100
AECC	BCA-3.2	MIL – 3	3	3	45	3	20	80	100
DSC	BCA-3.3	Data Structures using C	4 + 0	4	48	3	20	80	100
DSC	BCA-3.4	OOP with C++	4 + 0	4	48	3	20	80	100
DSC	BCA-3.5	Introduction to Operating System	3 + 1	4	48	3	20	80	100
DSC	BCA-3.6	Data Communications	3 + 1	4	48	3	20	80	100
DSC	BCA-3.7	Data Structures LAB	2	4	48	3	10	40	50
DSC	BCA-3.8	CPP LAB	2	4	48	3	10	40	50
		Total	26	30			140	560	700

SEMESTER -IV

Course	Paper Code	Paper Title Theory/Practical	Credits	No. of Hrs/ Week Theory/ Practical	Total Hours	Duration of Exam in Hrs Theory/ Practical	Internal Assessment Marks Theory/ Practical	Marks for Final Exam Theory/ Practical	Total Marks
AECC	BCA-4.1	English - 4	3	3	45	3	20	80	100
AECC	BCA-4.2	MIL – 4	3	3	45	3	20	80	100
DSC	BCA-4.3	Data Base Management System	4 + 0	4	48	3	20	80	100
DSC	BCA-4.4	Programming in JAVA	4 + 0	4	48	3	20	80	100
DSC	BCA-4.5	Software Engineering	3 + 1	4	48	3	20	80	100
DSC	BCA-4.6	System Programming	3 + 1	4	48	3	20	80	100
DSC	BCA-4.7	DBMS LAB	2	4	48	3	10	40	50
DSC	BCA-4.8	JAVA LAB	2	4	48	3	10	40	50
		Total	26	30			140	560	700

SEMESTER - V

Course	Paper Code	Paper Title Theory/Practical	Credits	No. of Hrs/ Week Theory/ Practical	Total Hours	Duration of Exam in Hrs Theory/ Practical	Internal Assessment Marks Theory/ Practical	Marks for Final Exam Theory/ Practical	Total Marks
DSC	BCA-5.1	Web Programming	4 + 0	4	48	3	20	80	100
*DSE	BCA-5.2	Core Elective – I	3 + 1	4	48	3	20	80	100
*DSE	BCA-5.3	Core Elective – II	3 + 1	4	48	3	20	80	100
*DSE	BCA-5.4	Core Elective – III	3 + 1	4	48	3	20	80	100
SEC	BCA-5.5	Mini Project – I	2	4	48	3	10	40	50
DSC	BCA-5.6	Web Programming LAB	2	4	48	3	10	40	50
		Total	20	24			100	400	600

Note: Each DSE shall have three papers, Student shall opt any one paper from each DSE

List of Core Elective - I

Sl. No.	Elective Courses Code	Core Electives (One of the following elective to be chosen)
1	BCAE – 5.2 A	Management Information System
2	BCAE – 5.2 B	Managerial Economics
3	BCAE – 5.2 C	Decision Support System

List of Core Elective - II

Sl. No.	Elective Courses Code	Core Electives (One of the following elective to be chosen)
1	BCAE – 5.3 A	Computer Graphics
2	BCAE – 5.3 B	Computer Networks
3	BCAE – 5.3 C	Object Oriented Analysis & Design

List of Core Elective - III

Sl. No.	Elective Courses Code	Core Electives (One of the following elective to be chosen)
1	BCAE – 5.4 A	Artificial Intelligence
2	BCAE – 5.4 B	Introduction to Machine Learning
3	BCAE – 5.4 C	Internet of Things (IoT)

SEMESTER - VI

Course	Paper Code	Paper Title Theory/Practical	Credits	No. of Hrs/ Week Theory/ Practical	Total Hours	Duration of Exam in Hrs Theory/ Practical	Internal Assessme nt Marks Theory/ Practical	Marks for Final Exam Theory/ Practical	Total Marks
DSC	BCA-6.1	Python Programming	4 + 0	4	48	3	20	80	100
DSE	BCA-6.2	Core Elective – I	3 + 1	4	48	3	20	80	100
DSE	BCA-6.3	Core Elective – II	3 + 1	4	48	3	20	80	100
DSE	BCA-6.4	Core Elective – III	3 + 1	4	48	3	20	80	100
SEC	BCA-6.5	Mini Project – II	2	4	48	3	10	40	50
DSC	BCA-6.6	Python Programming LAB	2	4	48	3	10	40	50
		Total	20	24			100	400	600

Note: Each DSE shall have three papers, Student shall opt any one paper from each DSE

List of Core Elective - I

Sl. No.	Elective Courses Code	Core Electives (One of the following elective to be chosen)
1	BCAE – 6.2 A	Data Mining
2	BCAE – 6.2 B	Mobile Communications
3	BCAE – 6.2 C	Design and Analysis of Algorithms

List of Core Elective - II

Sl. No.	Elective Courses Code	Core Electives (One of the following elective to be chosen)
1	BCAE – 6.3 A	Computer Vision
2	BCAE – 6.3 B	Cyber Security
3	BCAE – 6.3 C	Network Security

List of Core Elective - III

Sl. No.	Elective Courses Code	Core Electives (One of the following elective to be chosen)
1	BCAE – 6.4 A	Mobile Applications
2	BCAE – 6.4 B	Cloud Computing
3	BCAE – 6.4 C	Operation Research

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