

TRIPURA UNIVERSITY
(A Central University)
Suryamaninagar – 799022

Draft Rules and Regulations of 3 years (Six Semesters)
Bachelor of Computer Application (BCA) Degree Course under CBCS

1. These Rules and Regulations shall come into effect from the Academic session of 2015-2016 onwards.
2. The Bachelor of Computer Application shall be of three years duration and be divided into 6 Semesters.
3. The medium of instruction for BCA Programme shall be English and candidates shall have to write the answers in English only.
4. Hon'ble Vice-Chancellor's decision shall be final if there are any discrepancies regarding rules and regulation of the course.

5. Admission Criteria:

- 5.1. Candidates shall be eligible for admission to the BCA Programme who have passed H.S.(+2 stage) or 3 year engineering diploma course in any technical branch or its equivalent examination from any recognized Board/Council and have passed in any two subjects out of the three subjects, viz, Mathematics, Physics and Statistics.
- 5.2. Selection shall be made through an admission test conducted by selection committee constituted by the University for the purpose (applicable for University only).
- 5.3. Selected candidates shall have to take admission within the prescribed time on payment of requisite course fee along with necessary documents as prescribed by the University from time to time.

6. Examination System:

- 6.1. Internal Assessment Marks shall be awarded on the basis of Students Behavior/ Class Attendance/ Class Test Performance (Written/Viva/ Assignments) from time to time. Department shall send this Internal Assessment Marks to the Controller of Examinations, T.U. before the completion of theory examination.
- 6.2. At the end of each semester, there shall be a "Semester End Examination" to be conducted by the Controller of Examinations, T.U.
- 6.3. Each student shall have to secure pass marks in every paper of the course separately.
- 6.4. Pass Marks for each paper is 40%.
- 6.5. Student shall not be allowed to reappear at the examination of a paper in which he/she has already secured pass marks.
- 6.6. If a candidate secures 40% marks in aggregate in any semester but fails to secure 40% marks in not more than 2 papers, he/ she will be qualified to next semester with back in failed paper(s).
- 6.7. Students shall be eligible for the next semester examination provided he / she does not have back papers exceeding two in the Semester Exam he / she has appeared; otherwise he/she will be declared fail.
- 6.8. The candidate shall have to clear the back paper(s) in the next appropriate semester examinations along with his/her regular semester examination (odd to odd and even to even).
- 6.9. If a candidate fails to qualify in any semester, as mentioned in 6.6 and 6.8, he / she shall be declared failed and his/her admission to the next semester shall automatically be cancelled.
- 6.10.
 - 6.10.1. A Candidate may be declared qualified in a Semester if he/she does not have more than two back papers in a semester and not more than four back papers in total, provided the candidate has secured 40% marks in aggregate in each of the

Semesters.

- 6.10.2. If a candidate who qualifies in fourth semester should not have back paper in first semester
- 6.10.3. If a candidate who qualifies in fifth semester should not have back paper in second semester
- 6.10.4. If a candidate who qualifies in sixth semester should not have back paper in third semester.
- 6.11. At the time of publication of 6th Semester result of a candidate, it may be declared RW:
 - 6.11.1. If the candidate does not have more than four back papers in total and has passed in all the papers of 6thSemester.
 - 6.11.2. If the number of back papers of previous Semesters are three and number of back papers of 6th Semester does not exceed one. Aggregate marks of the 6th Semester of such students should not be less than 40%.
 - 6.11.3. If the number of back papers of previous semesters are two and number of back papers of 6th Semester does not exceed two. Aggregate marks of the 6th Semester of such students should not be less than 40%.
 - 6.11.4. A special final examination will be held within three months of the publications of the result of 6thSemester.The candidates those whose results were declared RW at the time of publication of the result of6thSemester shall be eligible to appear at the Special Final Examination.
- 6.12. If a candidate fails to clear all the back papers in Special Final Examination, such candidate shall appear in the failed papers in the appropriate Semester Examination, provided that he/she has not exceeded the stipulated chances/ numbers of maximum years for completion of the course as mentioned in this Rules and Regulations.
 - 6.12.1. A failed candidate shall appear only in next appropriate semester examinations (odd to odd and even to even).
 - 6.12.2. A candidate shall have to be qualified in all the semester examinations within a period of ten semesters from the date of admission to the 1stsemester. If a candidate fails to qualify all the examinations within the stipulated chances, his/ her registration to the course shall automatically be cancelled.
 - 6.12.3. To be eligible to appear at “Semester End Examination”, each student shall have a minimum 75% attendance in the classes of both theory and practical separately.
 - 6.12.4. If a student having attendance between 65% and less than 75% shall be declared as non-collegiate, non-collegiate fee along with other fees should be paid by him/ her as per the University Rules and regulations.
 - 6.12.5. If a student having attendance less than 65% shall be declared as dis-collegiate. Such candidate shall not be allowed to appear at the examination. However, he/she may take re-admission to that semester subject to availability of seats and on payment of requisite semester fees.
 - 6.12.6. An affiliated college/institution shall submit application form duly filled-in by the candidates intending to appear at the said examination(s) within the last date fixed by the University to the Controller of Examinations along with required fees.

7. Course Structure for Bachelor of Computer Application (BCA)

(Effective for batches admitted from 2015)

Note.: C –Core, E- Elective, P – Practical, L- Lectures, T- Tutorial ;

BCA SEMESTER 1

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0101C	Fundamentals of IT - I	3-1-0	4	4	100
INFT0102C	Environmental Studies	3-0-0	3	3	100
INFT0103C	Mathematics	3-1-0	4	4	100
INFT0104C	English and Functional Communication	3-1-0	4	4	100
INFT0105P	Soft Skill & Communication Laboratory	0-0-2	2	4	100
INFT0106P	Computer Fundamental Lab	0-0-2	2	4	100
Total Credits	3 Theory, 3 Laboratories	12-1-4	19	23	600

BCA SEMESTER 2

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0201C	Fundamentals of IT- II	3-0-0	3	3	100
INFT0202C	ICT Workshop	0-0-2	2	4	100
INFT0203C	Basic Electronics	3-1-0	4	4	100
INFT0204C	C Programming	3-1-0	4	4	100
INFT0205P	Electronics Laboratory	0-0-2	2	4	100
INFT0206P	C Programming Laboratory	0-0-2	2	4	100
Total Credits	4 Theory, 2 Laboratories	9-2-6	17	23	600

BCA SEMESTER 3

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0301C	Computer Organization	3-1-0	4	4	100
INFT0302C	Data Structures& Algorithm	3-1-0	4	4	100
INFT0303C	Operating System	3-1-0	4	4	100
INFT0304P	Data Structures& Algorithm Laboratory	0-0-3	3	6	100
INFT0305P	Introduction to Unix/ Linux Laboratory	0-0-2	2	4	100
Total Credits	3 Theory, 2 Laboratories	9-3-5	17	22	500

BCA SEMSTER 4

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0401C	Fundamentals of Software Engineering	3-0-0	3	3	100
INFT0402C	Database Management Systems	3-1-0	4	4	100
INFT0403P	Elective I Laboratory	0-0-2	2	4	100
INFT0404P	Database Management Systems Lab	0-0-2	2	4	100
	Elective I (Subject to be chosen from list of Elective I)	3-1-0	4	4	100
	Elective II (Subject to be chosen from list of Elective II)	3-1-0	4	4	100
Total Credits	4 Theory,2 Laboratories	12-3-4	19	24	600

BCA SEMESTER 5

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0501C	Introduction to OOPS	3-0-0	3	3	100
INFT0502C	Data Communication and Computer Networks	3-0-0	3	3	100
INFT0503C	Web Technology	3-0-0	3	3	100
INFT0504P	Computer Network Laboratory	0-0-2	2	4	100
INFT0505P	Web Technology Laboratory	0-0-2	2	4	100
INFT0506P	OOP Lab	0-0-2	2	4	100
	Elective III (Common Elective) (Subject to be chosen from list of Elective III)	3-1-0	4	4	100
Total Credits	4Theory, 3 Laboratories	11-2-6	19	25	700

BCA SEMESTER 6

Course Code:	Course Title	L-T-P/S	Credits	Hours	Marks
INFT0601P	Project and Viva Voce	0-0-16	16	--	400
INFT0602P	Seminar	0-0-2	2	4	100
	Elective IV (Subject to be chosen from list of Elective IV)	4-0-0	4	4	100
Total Credits	1 Project, 1 Theory, 1 Seminar	0-0-18	22	8	600

Total Credit= 113, Core Credit= 97 (Theory=56, Practical=41), Elective= 16 (Departmental Elective= 12, Non Departmental Elective= 04)

7.1. Elective Subjects

Course Code	Course Title	Credits	Semester No
SEMESTER 4			
Elective I			
INFT0401E	Computer Architecture	4	4
INFT0402E	Microprocessor	4	4
SEMESTER 4			
Elective II			
INFT0403E	Computer Graphics	4	4
INFT0404E	Data Mining and Data Warehousing	4	4
INFT0405E	Discrete Mathematics	4	4
INFT0406E	Image Processing	4	4
INFT0407E	Sensor Networks	4	4
INFT0408E	Software Project Management	4	4
SEMESTER 5			
Elective III (Common Elective)			
INFT0501E	Yoga	4	5
INFT0502E	Music	4	5
INFT0503E	Fine Arts	4	5
INFT0504E	Communicative English	4	5
INFT0505E	NSS	4	5
SEMESTER 6			
Elective IV			
INFT0601E	Advanced Website Designing(PHP/ASP.Net)	4	6
INFT0602E	Advanced DBMS	4	6
INFT0603E	Computer Vision	4	6
INFT0604E	Cryptography	4	6
INFT0605E	Formal Language and Automata Theory	4	6
INFT0606E	Mobile Computing	4	6
INFT0607E	Pattern Recognition	4	6

7.2. Allocation of elective papers would be done subject to availability of faculty members of the same subject and total number of student opted for the same subject.

8. Paper Setting, Moderation and Evaluation of Answer Scripts & Results:

8.1. Question Pattern & Distribution of Marks For Theory Papers:

8.1.1. Question No.1: 5 Objective Type Questions to be answered. Each question carries 2 mark. **2 x5 = 10**

8.1.2. QuestionNo.2: 5 Long Answer Type Questions to be answered out of 8 questions. Each Question carries 12 marks. Each question may be subdivided into parts. **12x5=60**

8.1.3. Theory marks: 70, Internal Assessment Marks: 30 (Total=100)

8.1.4. Candidate should score 40% marks in internal test to sit in end term examination.

8.1.5. The duration of Examinations shall be three hours for each theory paper of 70 marks.

8.1.6. There shall be a Board of moderators appointed by the Controller of Examinations, T.U. to moderate all the questions of subject papers.

8.1.7. There shall be two sets of question for each paper to be set. One by Internal paper setter and another by the External paper setter.

- 8.1.8. Answer Scripts should be evaluated by the Examiners as appointed by the Controller of Examinations, T.U.
- 8.1.9. Total marks of each of the paper is 100 (Written Examination Mark=70 and Internal Assessment Mark=30).
- 8.1.10. Candidates shall have to submit the "Project Report" for their Project Examination duly certified by the concerned teacher and Head of the Department in duplicate prior to commencement of the Examination. The candidates are required to present the "Project Work" before the Examiners (Internal & External) and defend the same in Project Viva-voce Examination. At least one Internal Examiner and one External Examiner shall be present in the Project Examination. Marks of Project Examination shall be awarded to the students by the examiners jointly.

8.2. Result shall be declared on the basis of CREDIT system as given below

8.2.1. GRADE PATTERN: Letter Grades and Grade Points:

8.2.1.1. Two methods – relative grading or **absolute grading** – have been in vogue for awarding Grades in a course. The relative grading is based on the distribution (usually normal distribution) of marks obtained by all the students of the course and the grades are awarded based on a cut-off marks or percentile. **Under the absolute grading, the marks are converted to grades based on pre-determined class intervals.**

8.2.1.2. A 10 point grading system with the following letter grades as given below:

	Letter Grade	Grade Point
80%andabove	O (Outstanding)	10
70%andabovebutbelow80%	A+ (Excellent)	9
60%andabovebutbelow70%	A (Very Good)	8
55%andabovebutbelow60%	B+ (Good)	7
50% and above but below 55%	B (Above Average)	6
45% and above but below 50%	C (Average)	5
40%andabovebutbelow 45%	P (Pass)	4
Below40%	F (Fail)	0
	Ab (Absent)	0

8.2.1.3. A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.

'X' shall be shown in the result column of the failed candidates. Grade shall be given to each paper of every semester and also for the semester taking the total marks of all the papers of the concerned semesters.

8.2.2. Computation of SGPA and CGPA

The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the course undergone by a student, i.e

$$SGPA (S_i) = \frac{\sum(C_i \times G_i)}{\sum C_i}$$

Where C_i is the number of credits of the i th course and G_i is the grade point scored by the student in the i th course.

(ii) The CGPA is also calculated in the same taking into account all the course undergone by a student over all the semesters of a programme, i.e.

$$CGPA = \frac{\sum(C_i \times S_i)}{\sum C_i}$$

Where S_i is the SGPA of the i th semester and C_i is the total number of credits in that

semester.

(iii) The SGPA and CGPA shall be rounded off to 2 decimal point and reported in the transcripts.

Computation of SGPA and CGPA:

Illustration for SGPA

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course 1	4	A	8	4 X 8 = 32
Course 2	4	B+	7	4 X 7 = 28
Course 3	4	B	6	4 X 6 = 24
Course 4	4	O	10	4 X 10 = 40
Course 5	4	C	5	4 X 5 = 20
Course 6	4	B	6	4 X 6 = 24
	24			168

Thus, SGPA = $168/24 = 7$

Illustration for CGPA

Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6
Credit : 24 SGPA : 7	Credit : 24 SGPA : 7	Credit: 24 SGPA: 7	Credit: 24 SGPA: 7	Credit: 24 SGPA: 7	Credit: 24 SGPA: 7

Thus, CGPA = $\frac{24 \times 7 + 24 \times 7 + 24 \times 7 + 24 \times 7 + 24 \times 7 + 24 \times 7}{144}$ (total number of credits in all the semesters' i.e 24+24+24+24+24+24) = 7

Final result shall be declared after the successful completion of all the six semesters. Final Grade shall be declared cumulating the total marks of all the semester examinations.

8.2.3. Illustration of Completion of SGPA and CGPA and Format for Transcripts

Course	Credit	Grade Letter	Grade Point	Credit Point (Credit X Grade)	SGPA (Credit Point/Credit)
Semester I					
INFT0101C	04	A	8	32	
INFT0102C	04	B+	7	28	
INFT0103C	04	B	6	24	
INFT0104C	04	B	6	24	
Total	16			108	108/16= 6.75
Semester II					
INFT0201C	04	B	6	24	
INFT0202C	04	C	5	20	
INFT0203C	04	B+	7	28	
INFT0204C	04	A+	9	36	
Total	16			108	108/16= 6.75
Semester III					
INFT0301C	04	A+	9	36	
INFT0302C	04	O	10	40	
INFT0303C	04	A	8	32	
INFT0304P	04	A	8	32	
Total	16			140	140/16= 8.75
Semester IV					

INFT0401C	04	B	6	24	
INFT0402C	04	A+	9	36	
INFT0403P	04	B	6	24	
INFT0404P	04	A+	9	36	
Total	16			120	120/16 = 7.5
Semester V					
INFT0501C	04	C	5	20	
INFT0502C	04	A	8	32	
INFT0503C	04	B+	7	28	
INFT0504P	04	A	8	32	
Total	16			112	112/16 = 7
Semester VI					
INFT0601P	04	B+	7	28	
INFT0602P	04	A	8	32	
INFT06**E	04	B	6	24	
INFT0603P	04	C	5	20	
Total	16			104	104/16 = 6.5
Grand Total	96			692	692/96 = 7.2

Semester I	Semester II	Semester III	Semester IV	Semester V	Semester VI
Credit : 16; SGPA: 6.75	Credit : 16; SGPA: 6.75	Credit : 16; SGPA: 8.75	Credit : 16; SGPA: 7.5	Credit : 16; SGPA: 7	Credit : 16; SGPA: 6.5

Thus **CGPA** = $(16 \times 6.75 + 16 \times 6.75 + 16 \times 8.75 + 16 \times 7.5 + 16 \times 7 + 16 \times 6.5)/96 = 7.2$