

**SHRI GOVIND GURU UNIVERSITY,
GODHRA -389 001**

**CHOICE BASED CREDIT SYSTEM
(CBCS)
Ordinances and Regulations**

(For the UG -B. Sc. Regular Programmes)

(For the candidates to be admitted from the
academic year 2016 - 2017 onwards)

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Ordinances for B.Sc. = O. B.Sc. & Regulations for B.Sc. = R. B. Sc.

O. B. Sc. 1. Eligibility:

I. For Admission : A pass in the Higher Secondary Examination (with Science Subjects) conducted by the Government of Gujarat; or an examination accepted as equivalent thereto by the Shri Govind Guru University, subject to such conditions as may be prescribed therefor.

II. The candidates who have passed the qualifying examination with A stream (Maths) are eligible to choose any one of the following group of subjects at the time of admission in 1st Semester as core courses for Semester I & II

Group - A

1	2	3	4	5	6	7	8
Physics	Physics	Physics	Physics	Physics	Physics	Physics	Physics
Maths	Maths	Geology	Maths	Maths	Env. Sci.	Electronics	Statistics
Chemistry	Statistics	Chemistry	Computer Science	Electronics	Chemistry	Chemistry	Chemistry

Whereas the candidates who have passed the qualifying examination with B stream (Biology) are eligible to choose any one of the following group of subjects at the time of the admission in 1st Semester as core courses for semester I & II.

Group - B

1	2	3	4	5	6	7
Physics	Physics	Physics	Physics	Physics	Physics	Microbiology
Geology	Env. Sci.	Microbiology	Botany	Zoology	Biochemistry	Biochemistry
Chemistry	Chemistry	Chemistry	Chemistry	Chemistry	Chemistry	Botany

8	9	10	11	12	13
Microbiology	Microbiology	Microbiology	Botany	Biochemistry	Biochemistry
Botany	Zoology	Biotechnology	Zoology	Botany	Zoology
Chemistry	Chemistry	Chemistry	Chemistry	Chemistry	Chemistry

Group B Subject combinations may also be offered to the candidates who have passed the qualifying examination with A stream (Maths) subjects, provided the candidates have compulsorily selected Biological basic as the elective course in first semester. Similarly Group A subject combinations may also be offered to the candidates, who have passed the examination with B stream (Biology) subjects, provided the candidates have compulsorily selected mathematical basics and quantitative skills as the elective course in the first semester. The candidates who have passed Higher Secondary Examination with AB Stream are eligible to choose any one group of subjects of either

Group A or Group B at the time of admission in 1st Semester as core courses for semester I & II. Any change in the group of subjects (core courses) to be offered to the students, if required, is to be intimated to University and with approval of University before 31st July of the year.

III. The candidate shall be normally allowed to choose any two subjects (core courses) out of three subjects (core courses) from semester I and II programmes, while moving in the third semester. Both the subjects (core courses) shall carry equal weight age. The subjects (core courses) other than the main core course, shall be considered as Allied (Optional) Core Courses for the purpose of award of the B.Sc. Degree.

IV. A student having passed the Diploma Electrical / Electronics / Computer / Chemical Engineering or Diploma Pharmacy Examination of Gujarat technological University or Any other examination recognized as equivalent thereto will be eligible for the admission to the third semester of B.Sc. . of the six semester degree programme in science as per the following conditions:

- (a) For direct admission to B.Sc. Semester III with physics as core course, a student must have passed Diploma examination in any branch of Engg.
- (b) For direct admission to B.Sc. Semester III with Botany or Zoology or Microbiology or Biochemistry or Biotechnology as core course, a student must have passed Diploma examination in the pharmacy.
- (c) For direct admission to B.Sc. Semester III with Computer Science Or Electronics as core course, a student must have passed Diploma examination in relevant branch of Engg.
- (d) For direct admission to B. Sc. Semester III with Chemistry as core course, a student must have passed Diploma examination in the Chemical Engg. , Plastic Engg., & Relevant branch of Engg. or/ Pharmacy.

The student admitted under the above category will be exempted from appearing in the examinations of B.Sc. Semester I & II. A student will be given the credits for Semester I & II based on the Performance in the final Diploma examination

V. For the Degree :

The candidates shall have subsequently undergone the prescribed course of study in a college affiliated to this University for a period of not less than three academic years, passed the prescribed examinations and fulfilled such conditions as have been prescribed therefore.

O. B. Sc. 2. Duration :

Duration of U.G. regular program is Six semester or three year.. Each academic year

shall comprise of two semesters viz. Odd and Even semesters. Odd semesters shall be from June / July to October / November and Even Semesters shall be from November / December to April / May. There shall be not less than 90 working days which shall comprise 450 teaching clock hours for each semester. (Exclusive of the days for the conduct of University or end-semester examinations). A candidate can avail a maximum of 12 Semesters (6 Years), in a continuous stretch of 6 Years from the date of admission to complete Bachelor's Degree

O. B. Sc. 3. Courses offered for B. Sc. Programme :

Mathematics	Statistics	Physics
Chemistry	Botany	Zoology
Geology	Computer Science	Electronics
Bio Chemistry	Microbiology	Biotechnology
Environmental Sciences	*Fire & Safety	

O. B. Sc. 4. The CBCS System :

All Programmes shall be run on Choice Based Credit System (CBCS). It is an instructional package developed to suit the needs of students to keep pace with the developments in higher education and the quality assurance expected of it in the light of liberalization and globalization in higher education.

O. B. Sc. 5. Courses in Programmes :

The B. Sc. - programme consists of a number of courses. The term 'course' is applied to indicate a logical part of the subject matter of the programme and is invariably equivalent to the subject matter of a "paper" in the conventional sense. The following are the various categories of Courses suggested for the UG B. Sc. - programmes.

Elective Courses (ECs) (as listed in R. B. Sc. 6),
 Foundation Courses (FCs) (as listed in R. B. Sc. 6), Core Courses–I, II & III (CCs), Subject Elective Courses (SECs) (as listed in R. B. Sc. 5)

Foundation Courses are meant to develop the students' Communicative Skill and Social Awareness at the UG level. Core Courses are the basic courses compulsorily required for each of the programme of study. These will be related to the subject of the programme in which the candidate gets his / her degree. The number of Core Course - I shall be 15. Core Courses II & III cover two disciplines that are generally related to the main subject of the programme. The number of Core Course II shall be 10 and the number of Core Course III shall be 4. (The number for Courses includes Practical Courses also.)

**Core Structure for UG B. Sc. – CBCS Programme
Semester – I**

Type of Course	Paper No.	Type of Paper	Credit
Elective Course (EC – I)	EC - 101	e.g. Public Health etc.	2
Foundation Course(FC-I)	FC – 101	e.g. General English	2
Core Course – 1 (CC – 1)	Paper-101	e.g. Phy. – 101	4
Core Course – 2(CC – 2)	Paper-101	e.g. Bot.– 101	4
Core Course – 3 (CC – 3)	Paper-101	e.g. Chem. – 101	4
Core Course – 1 (CC – 1)	*CC-1-Pract.-102	e.g. Physics – 102	3
Core Course – 2(CC – 2)	*CC-2-Pract.-102	e.g. Botany – 102	3
Core Course - 3(CC – 3)	*CC-3-Pract.-102	e.g. Chemistry – 102	3
Total Credit			25

Semester – II

Type of Course	Paper No.	Type of Paper	Credit
Elective Course (EC –II)	EC - 102	e.g. Env. Studies	2
Foundation Course(FC-II)	FC – 102	e.g. Communication Skills	2
Core Course – 1 (CC – 1)	Paper-103	e.g. Phy. – 103	4
Core Course – 2(CC – 2)	Paper-103	e.g. Bot.– 103	4
Core Course – 3 (CC – 3)	Paper-103	e.g. Chem. – 103	4
Core Course – 1 (CC – 1)	*CC-1-Pract.-104	e.g. Physics – 104	3
Core Course – 2(CC – 2)	*CC-2-Pract.-104	e.g. Botany – 104	3
Core Course - 3(CC – 3)	*CC-3-Pract.-104	e.g. Chemistry – 104	3
Total Credit			25

Semester – III

Type of Course	Paper No.	Type of Paper	Credit
Elective Course (EC –III)	EC - 201	e.g. Carbon Credit	2
Foundation Course(FC-III)	FC – 201	e.g. General English& Composition	2
Core Course – 1 (CC – 1)	Paper-201	e.g. Phy. – 201	4
	Paper-202	Phy. – 202	4
Core Course – 2(CC – 2)	Paper-201	e.g. Chem – 201	4
	Paper-202	Chem – 202	4
Core Course – 1 (CC – 1)	*CC-1-Pract.-203	e.g. Physics – 203	2.5
Core Course – 2 (CC – 2)	*CC-2-Pract.-203	e.g. Chemistry – 203	2.5
Total Credit			25

Semester – IV

Type of Course	Paper No.	Type of Paper	Credit
Elective Course (EC –IV)	EC - 202	e.g. Nano Technology	2
Foundation Course(FC-IV)	FC – 202	e.g. Scientific Writing	2
Core Course – 1 (CC – 1)	Paper-204	e.g. Phy. – 204	4
	Paper-205	Phy. – 205	4
Core Course – 2(CC – 2)	Paper-204	e.g. Chem – 204	4
	Paper-205	Chem – 205	4
Core Course – 1 (CC – 1)	*CC-1-Pract.-206	e.g. Physics – 206	2.5
Core Course – 2 (CC – 2)	*CC-2-Pract.-206	e.g. Chemistry – 206	2.5
Total Credit			25

Semester – V

Type of Course	Paper No.	Type of Paper	Credit
Foundation Course (FC-V)	FC – 301	e.g. General English- Creative Writing in English	2
Core Course – 1 (CC – 1)	Paper-301	e.g. Phy. – 301	4
	Paper-302	Phy. – 302	4
	Paper-303	Phy. – 303	4
	Paper-304	Phy. – 304	4
Subject Elective Course (SEC)	e.g. Phy. – 305	e.g. Phy. – 305	2
Core Course – 1 (CC -1)	*Pract. – I Paper 306 *Pract. – II	e.g. Physics - 306	5
Total Credit			25

Semester – VI

Type of Course	Paper No.	Type of Paper	Credit
Foundation Course(FC-VI)	FC – 302	e.g. Soft Skill : Personality Development	2
Core Course – 1 (CC – 1)	Paper-307	e.g. Phy. – 307	4
	Paper-308	Phy. – 308	4
	Paper-309	Phy. – 309	4
	Paper-310	Phy. – 310	4
Subject Elective Course (SEC)e.g. Project	e.g. Phy. – 311	e.g. Phy. – 311	2
Core Course – 1 (CC -1)	*Pract. – I Paper 312 *Pract. – II	e.g. Physics - 312	5
Total Credit			25

*For Sem. I & II, each practical batch should not have more than 20 students and for Sem. III to VI, each practical batch should not have more than 15 students. This is because practical's in Science Subjects require individual attention for imparting correct and adequate hands – on training to the students.

Subject Elective Courses (SECs) are open to all students of Science Programme

The Elective Courses (EC), four in number for each UG degree are open to all students; irrespective of Science, Arts or Commerce Programmes. A student shall choose at least two Elective Courses from outside his / her Department. It is also open to a student to choose all the four Elective Courses from outside his / her Department.

Selection of students to the ECs :

- a. The Department Committee shall follow a selection procedure on a first come first served basis, fixing the maximum number of students, giving counselling to the students etc. to avoid overcrowding to particular course(s) at the expense of some other courses.
- b. The failed candidates in one EC are permitted to opt for another EC in another programme Or they are permitted to continue with the same EC.
- c. The Colleges shall provide all information relating to the ECs in each programme to all the students so as to enable them to choose their ECs.

O. B. Sc. 6.

Certificate Course on Environmental Studies is to be offered in the second semester of all the UG Programmes as elective course compulsorily as prescribed/directed by University Grant Commission.

O. B.Sc. 7.

Part IV - Extension and Extra-Curricular Activities : These should be carried out outside the class hours. e.g. NSS, NCC, participation in Youth Welfare activities/Sports at National or International Level, will be assigned two additional credits/year. (May be implemented later)

O. B.Sc. 8.Semesters :

An academic year is divided into two semesters. In each semester, courses are offered in 15 teaching weeks and the remaining 6 weeks are to be utilized for conduct of admission, examinations and evaluation purposes. Each week has 40 working hours spread over 5 / 6 days a week.

O. B.Sc. 9.Credits :

The term 'Credit' refers to the weight age given to a course, usually in relation to the

instructional hours assigned to it. For instance, a Twelve Instructional hour course of practical's for sem. V & VI per week is assigned Five Credits, Six Instructional hour course of practical's for Sem. III & IV per week is given Two & half Credits and Four to Six hours Instructional hour course of practical's for Sem. I & II per week is assigned Three Credits. Four hour Theory course per week is given Four Credits. Three hour Theory course per week in case of Elective/Foundation/Subject elective courses, is given Two Credits. However, in no instance the Credits of a Course can be greater than the hours allotted to it.

The total minimum Credits, required for completing a B. Sc. programme is 150. The details of credits for individual components and individual courses are given in B. Sc. - 1 & 2.

O. B.Sc. 10. Course :

Each Course is to be designed variously under lectures / tutorials / laboratory or field work / seminar / practical training / assignments / term paper or report writing etc., to meet effective teaching and learning needs.

O. B.Sc. 11. Examinations :

- (i) There shall be examinations at the end of each semester, for odd semesters in the month of October / November; for even semesters in March / April. A candidate who does not pass the examination in any course(s) shall be permitted to appear in such failed course(s) in the subsequent examinations to be held in October / November or March / April.
- (ii) A candidate should get enrolled for the first semester examination. If enrolment/registration is not possible owing to shortage of attendance beyond condonation limit / regulations prescribed OR belated joining OR on medical grounds, the candidates are not permitted to move to the next semester. Such candidates shall re-do the semester in the subsequent turn of that semester as a regular student ; However, a student of First Semester shall be admitted in the Second Semester, if he/she has successfully kept the term in first semester. To move in the Third Semester, a student has to clear all Credits of first semester. Like wise, to move in the Fourth Semester, a student is required to obtain all the credits of second semester. Similarly, after clearing all the credits of third semester, a student can move to the fifth semester and he/she shall be allowed to move to the sixth semester after clearing all the credits of fourth semester

For the movement in the said semester as described above, the candidate must have satisfactorily kept the term of the previous semester.

O. B.Sc. 12. Condo nation :

Students must have 75% of attendance in each course for appearing in the examination. Students who have 74% to 70 % of attendance shall apply for condo nation in the prescribed form with the prescribed fee(Rs.500/Corse). Along with the Medical Certificate, students who have below 70% of attendance are not eligible to appear for the examination. It is furthered clarified that the students, who have 75% or more of attendance shall be given five out of five marks in internal evaluation. Students (if condoned), who have 74% to 70% of attendance shall be given 3 marks in internal evaluation.

O. B.Sc. 13. Question Paper Pattern :

Question Paper shall have four questions corresponding to four units of each theory course. Question No. 5 shall have objective type of questions to be asked from all the four units of the theory course by giving equal weightage.

O. B. Sc. 14. Evaluation :

The performance of a student in each course is evaluated in terms of percentage of marks with a provision for conversion to grade points. Evaluation for each course shall be done by a continuous internal assessment (CIA) by the concerned course teacher as well as by an end semester examination and will be consolidated at the end of the course. The components for continuous internal assessment are :

One Tests	15 Marks(Second/repeat test for genuine absentees)
Seminar, Quiz, Paper Presentation. Attend Seminar/Work shop.	05 Marks
Assignments	05 Marks
Attendance	5 Marks
Total	30 Marks

shall be taken as a component for continuous assessment, although the students should put in a minimum of 75% attendance in each course. In addition to continuous evaluation component, the end semester examination, which will be a written-type examination of at least 3 hours duration, would also form an integral component of the evaluation. The ratio of marks to be allotted to continuous internal assessment and to end semester examination is 30 : 70 The evaluation of laboratory component, wherever

applicable, will also be based on continuous internal assessment and on an end-semester practical examination.

O. B.Sc. 15. Passing Minimum :

The passing minimum for CIA (Continues Internal Assessment) shall be 36% out of 30 marks (i.e. 11 marks), where the candidate is required to appear for the internal test at least once. Failed candidates in the Internal Assessment are permitted to improve their Internal Assessment marks in the subsequent semesters. (2 chances will be given) The passing minimum for University or End Semester Examinations shall be 36% out of 70 marks (i.e. 25 marks)

O. B.Sc. 16. Grading :

Once the marks of the CIA (Continues Internal Assessment) and End- Semester Examinations for each of the courses are available, they will be added. The marks thus obtained will then be graded as per details provided in R. B. Sc. 3 and R.B.Sc. 9 VI A & B. From the First semester onwards the total performance within a semester and continuous performance starting from the first semester are indicated respectively by Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA). These two are

Calculated by the following formulae:

$$\text{SGPA} = \frac{\sum_{i=1}^n C_i G_i}{\sum_{i=1}^n C_i}$$

where 'C_i' is the Credit earned for the Course i in any semester ; 'G_i' is the Grade Point obtained by the student for the Course i and 'n' is the number of Courses passed in that semester.

CGPA = SGPA of all the Courses starting from the first semester to the current semester.

Note: (1) The SGPA and CGPA shall be calculated separately for the following three parts:

Part I: ECs; Part II: FCs and Part III CCs, SECs.

(2) The SGPA and CGPA shall be calculated only when the student has successfully cleared all the courses.

O. B.Sc. 17. Classification of Final Results :

I. For each of the three parts, there shall be separate classification on the basis of CGPA as indicated in R. B. Sc. 4.

II. For purposes of declaring a candidate to have qualified for the Degree of Bachelor of Science in the First class/Second class/Pass class or First class with

Distinction, the marks and the corresponding CGPA earned by the candidate in Part III alone will be the criterion, provided he / she has secured the prescribed passing minimum in ECs and FCs. It is further provided that the candidate should have scored the First/Second Class separately in both the grand total and end Semester (External) examinations.

- III. Grade in Part IV Extension and Extra Curricular Activities shall be shown separately and it shall not be taken into account for classification.
- IV. The marks for the course as elective (compulsory) course of SEM – II on “Environmental Studies” will be given in a separate certificate also by the college as per the guidelines of UGC, MHRD & the Hon’ble Supreme Court of India. The College shall charge Rs.200/- separately to meet the expenditure incurred towards the completion of this course, as per UGC/MHRD guide lines.
- V The Internal and the End Semester Examination for Elective Courses shall be conducted by the colleges.

O. B.Sc. 18. Conferment of the Bachelor’s Degree :

- (i) A candidate shall be eligible for the conferment of the Degree of Bachelor of Science (B.Sc. honours) only if he/she has earned the minimum required credits for the programme prescribed there for (i.e. 150 credits).
- (ii) A candidate shall be required to pay Rs.500/- towards the conferment of the Degree of B. Sc., which shall be enhanced by a 10% increase every three years and rounded off to the next 10/- rupees stage.

O. B.Sc. 19. End Semester Examinations :

- (i) **The University shall conduct Examinations for all the Semesters.**
Format of question paper and mark sheet suggested and / or prepared by the University.
- (ii) The examination fees for all end semester examinations shall be Rs.200/-per subject and Rs.250 for practical’s, term work/ project etc. for all subjects.(Which shall be enhanced by a 10% increase every three years and rounded off to a next 10/- rupees stage.)

O. B.Sc. 20. Self-Financing Stream :

The above Ordinances shall be applicable also for the candidates undergoing the programmes in Self-Financing Stream.

O. B.Sc. 21. Grievance Redressal Committee :

The College shall form a Grievance Redressal Committee for each course in each department with the Course Teacher and the HOD as the members. This Committee shall solve all

grievances relating to the Internal Assessment marks of the students.

O. B.Sc. 22. Transfer of Credits :

In case of Elective courses, Students are permitted to transfer their course credits from Centre for Distance Education (CDE) of any University to Regular Stream and vice-versa. Similarly, they are also permitted to transfer their course credits from other state or central universities after verification of eligibility criteria.

O. B.Sc. 23. Revision of Ordinances, Regulations and Curricula :

The University may from time to time revise, amend and change the Ordinances, the Regulations and the Curricula, if found necessary. The existing ordinances for passing the examination/ paper for annual pattern of courses shall also remain effective for the CBCS programmes.

R. B.Sc. 1 – (i)Details on the number of courses and credits per course in different UG - B.Sc.

Sr. No.	Study Components	Number of Courses	B. Sc.		Total Weekly hours/180 weekly hours
			Credits per Course	Total Credits	
1	Elective Course (EC)	4	2	8	12
2	Foundation Course (FC)	6	2	12	18
3	Core Course - 1 (CC-1), including SECs	14 + 2 (SECs)	4 & 2 (SECs)	56 + 4 = 60	62
	Practical's (I + II & III Year)	2+2+2	3+2.5+5	21	44 to(48)
4	Core Course - 2 (CC-2)	6	4	24	24
	Practical's (I + II Year)	2+2	3+2.5	11	20 to (24)
	Core Course – 3 (CC-3)	2	4	8	8
	Practical's (I Year)	2	3	6	8 to(12)
		46		150	196

Note :

- (I) Total weekly hours i.e. 196 hours includes 12 hours teaching of Elective Courses, which may/shall be carried out by the candidate inter or intra colleges/universities ; so actual weekly hours for the college shall be 196 – 12 =184 weekly hours. (A variable four to six Instructional Hours course of practical's for sem. I and sem.II having the weightage of Three Credits is suggested to accommodate theoretical considerations needed to teach students the conceptual aspects of the experiments during their first year of the career in a college.)
- (II) The workload taken up by the in house faculty of the college for conducting elective and foundation courses per Department, shall be counted as actual workload

R. B.Sc. 2 (i)- UG B.Sc. Programmes – Course Structure under CBCS for the Science Subject

Sem.	Course	Instru. Hours/Week	Credit	Exam ** Hours	Marks		
					Int.	Extn.	Total
1	Elective (EC) 1	3	2	3	100	-	100
	Foundation (FC) 1	3	2	3	30	70	100
	Core Course-1 (CC-1)	4	4	3	30	70	100
	CC-1 – Pract.	4 to 6	3	2x2	30	70	100
	CC – 2	4	4	3	30	70	100
	CC – 2 Pract.	4 to 6	3	2x2	30	70	100
	CC – 3	4	4	3	30	70	100
	CC – 3 Pract.	4 to 6	3	2x2	30	70	100
2	Elective (EC) 1	3	2	3	100	-	100
	Foundation (FC) 1	3	2	3	30	70	100
	Core Course-1 (CC-1)	4	4	3	30	70	100
	CC-1 – Pract.	4 to 6	3	2x2	30	70	100
	CC – 2	4	4	3	30	70	100
	CC – 2 Pract.	4 to 6	3	2x2	30	70	100
	CC – 3	4	4	3	30	70	100
	CC – 3 Pract.	4 to 6	3	2x2	30	70	100
3	Elective (EC) 3	3	2	3	100	-	100
	Foundation (FC) 3	3	2	3	30	70	100
	Core Course-1 (CC-1)	8	8	3	60	140	200
	CC-1 – Pract.	6	2.5	3x3	30	70	100
	CC – 2	8	8	3	60	140	200
	CC – 2 Pract.	6	2.5	3x3	30	70	100
4	Elective (EC) 4	3	2	3	100	-	100
	Foundation (FC) 4	3	2	3	30	70	100
	Core Course-1 (CC-1)	8	8	3	60	140	200
	CC-1 – Pract.	6	2.5	3x3	30	70	100
	CC – 2	8	8	3	60	140	200
	CC – 2 Pract.	6	2.5	3x3	30	70	100
5	Foundation (FC) 5	3	2	3	30	70	100
	Core Course-1 (CC-1) including SECs	16 + 3*	16 + 2*	3	150	350	500
	CC-I – Pract. I + II	12	5	4x3	60	140	200
6	Foundation (FC) 6	3	2	3	30	70	100
	Core Course-1 (CC-1) including SECs	16 + 3*	16 + 2*	3	150	350	500
	CC-I – Pract. I + II	12	5	4x3	60	140	200

* SECs (Subject Elective Courses) ** Hours x Day

R. B. Sc. 3 - Grading of the Courses

Percentage / Marks (Normalized)	Grade Points	Grade	Description
Above 85	8.5 – 10.0	O+	Outstanding
70 – 84.99	7.0 – 8.49	O	Excellent
60 – 69.99	6.0 – 6.99	A	Very good
55 – 59.99	5.5 – 5.99	B+	Good
48 – 54.99	4.8– 5.49	B	Fair
36 – 47.99	3.6 – 4.79	C	Average
Below 36	0.0	D (Dropped)	Dropped or Fail

R. B. Sc. 4 - Final Result

CGPA From-to	Letter Grade	Classification of Final Result
8.5-10	O+	First class with Distinction
7.0-84.99	O	
6.0-6.99	A	First Class
5.5-5.99	B	Higher Second Class
4.8-5.49	B+	Second Class
3.6-4.79	C	Pass Class
Below 3.6 -0.0	D	Dropped or Fail

**R. B.Sc. 5 - U. G. B. Sc. Programme – Subject Elective Courses (SECs)
Open to all Students of Science Programme**

Department Offering the SECs	Semester	Title of the Course Any two course / Sem. V or VI
Mathematic	V	1. Discrete Mathematics 2. C Programming for Mathematical Problems 3. Financial Mathematics 4 Statistical Maths 5 .Number Theory
	VI	1. Mathematical Modeling 2 Mechanics 3 Convex Analysis & Probability Theory 4. Cryptography 5 Operations Research 6 Bio-Mathematics 7project
Physics	V	1. Energy Physics 2. Molecular Biophysics 3. Spectroscopy & Laser Physics
	VI	1. Integrated Electronics 2. Project
Chemistry	V	1. Analytical Chemistry 2. Agricultural Chemistry 3. Polymer Chemistry
	VI	1. Industrial Chemistry 2. Project
Botany	V	1. Plant Biotechnology 2. Bio Statistics & computer Application in Botany 3. Medicinal Botany
	VI	1. Bio fertilizer & Biocides 2. Project
Zoology	V	1. Histotechnology 3. Wildlife 2. Aquaculture 4. Sericulture
	VI	1. Cancer Biology 3. Poultry Science 2. Project
Geology	V	1. Hydrogeology and Engineering geology 2. Environmental Geology and Marine Geology 3. Geoexploration
	VI	1. Remote Sensing GIS & Mining 2. Project
Statistics	V	1. Biostatistics 2. Elementary Descriptive Statistics 3. Statistical Methods
	VI	1. Operational Research Methods 2. Project
Bio Chemistry	V	1. Clinical Bio Chemistry 2. Plant Bio Chemistry 3. Endocrinology

Bio Chemistry	VI	1. Nutrition Biochemistry 2. Project
Computer Science	V	1. Programming Laboratory (Cobol Programming Lab.) 2. Fundamentals of Information Technology 3. Programming Laboratory (C++)
	VI	1. Basics of Computer Programming 2. Project
Electronics	V	1. Electronics in Communication 2. Computer Hardware 3. Biomedical Instrumentation
	VI	1. Radio & Television 2. Project
Microbiology	V	1. Environmental Pollutants & Microorganisms 2. Agricultural microbiology 3. Mushroom Technology
	VI	1. Biosafety' biohazards and bioethics 2. Geo microbiology 3. Public health and epidemiology 4. Project
Fashion & Apparel Design	V	1. Fabric Science and Care 2. Interior Decoration and furnishing 3. Cosmetology
	VI	1. Textile Arts and Crafts 2. Project
Environmental Science	V	1. Environmental Impact Assessment 2. Environmental Monitoring 3. Environmental Law
	VI	1. Environmental Testing 2. Project
Fire & Safety	V	1. Fire Fighting 2. fire Equipment's 3. Safety Management
	VI	1. Industrial Safety 2. Project

Note : (I) Students of Science Programme may be encouraged to select SECs as interdisciplinary and intra disciplinary modes.

(II) The board of study of the subjects, may add or delete the titles of SECs from the list, subject to final approval of academic as well as executive council of the Gujarat University.

**R. B.Sc. 6 – (I) - U. G. B. Sc. Programme – Elective Courses (ECs)
open to all.**

1. Forensic Science
2. Public Health
3. Water Analysis.
4. Clinical Research
5. Environment Studies
6. Nutrition and Dietetics
7. Food and Adulteration
8. Domestic Appliances.
9. Structure and Growth of Scientific Knowledge
10. DNA : the Molecule of Life
11. Bio-Diversity
12. Disaster Management
13. Bio-Technology : The Business of Biology
14. Industrial Instruments.
15. Carbon Credit
16. Natural Resource Management
17. Clean Development Mechanism
18. Nano Technology
19. Climate Change
20. Science and Society
21. Philosophy, Science and Religion
22. Bioinformatics
23. Mathematical Quantitative Skills
24. Basic Computer and its Applications

Elective for Vocational Bio- Technology

25. Cell Bio Technology
26. Plant and Animal Bio Technology
27. Environmental, Industrial and Entrepreneurial Bio Technology
28. Conceptual Industrial Chemistry
29. Industrial Process Chemistry
30. Applied Industrial Chemistry

(II) U. G. B. Sc. Programme – Foundation Courses (FCs)

1. General English
2. Communication Skills
3. Scientific Writing
4. Elementary Statistics and Data
5. Basic Computer Applications
6. Operation of Common Gadgets Community Medicine
7. Skill Oriented education
8. Value Oriented Education
9. Yog Meditation
10. Personality Developments
11. Renewable Energy Resources.

Note : The course curricula or reference materials for the elective as well as foundation courses, shall be prepared by the concern Board of Study of the Subjects and such courses shall only be made available to the students. However, for the compulsory elective course of second semester i.e. Environmental Studies, the Textbook prepared by E.Bharucha for UGC and published by Orient Blackswan, shall only be used as a text by all students of the science programme.

R. B. Sc. 7 - Course Structure :

- I** The B.Sc. programme is full time three years Under Graduate Programme. The medium of instruction shall be English. However, the students are allowed to write the answers in Gujarati in the examinations.
- II.** The programme consists of Six Semesters-Semester I and II in the First Year of the Programme, Semesters III and IV in the Second Year and V and VI Semesters in the Third Year of the programme.
- III.** The total programme consists of 150 credits equally divided into 25 credits per semester.
- IV.** There would be different elective areas of specialization as per syllabus of respective subject.
- V** The programme consists of the following types of courses
(i) Core courses: common for all optional specialization groups. (ii) Elective course & SECs: separate for all optional specialization groups.
(iii) Foundation courses for all specialization groups.

R. B.Sc 8- Clearing and carrying forward the Semesters :

Rules for carrying forward the semesters are :

- I** A candidate must have at least 75% overall attendance (except O.B.Sc.12) in the programme and should have satisfactory performance in class participation of each course and must have appeared in internal written test to be eligible for grant of term.
- II.** In case, a candidate obtains D in any one course/ all courses in the first semester, he/she shall be allowed to continue to proceed to the second semester provided he/she has kept his/her term of the first semester successfully.
- III.** The candidate shall be allowed to proceed to the third semester only after clearing all the courses of the first semester.
- IV.** In case, a candidate obtains D in any one course/ all courses in the second semester, he/she shall be allowed to continue to proceed to the third semester provided he /she has kept his/her term of the second semester successfully.
- V** The candidate shall be allowed to proceed to the fourth semester only after clearing all the courses of the second semester.
- VI.** In case a candidate obtains D in any one course/ all courses in the third semester, he/she shall be allowed to continue to proceed to the fourth semester provided he/she has kept his/her term of the third semester successfully. Similarly a candidate is allowed to move in the fifth semester provided he/she has kept his/her term of the fourth semester successfully and a candidate is allowed to move in the sixth semester after he/she has successfully kept the term of fifth semester even if he/she has failed in any one or all courses of the fifth semester .
- VII.** The candidate shall be eligible for the award of the degree after successful clearance of all the courses of semester I, II, III, IV, V & VI by the Sixth semester examination of the third year programme or till expiry of registration/enrolment.
- VIII.** When ever a candidate fails in a course due to failure of obtaining minimum marks in the internal component of the examination, the marks obtained in attendance and class participation shall be carried forward for the consideration of the repeat examination. The student has to appear in the internal test only to complete the requirement of the internal assessment.

R. B.Sc. 9- Assessment and Evaluations :

- I. Each course will be assessed on the basis of 100 marks. The marks would be divided between internal and external assessment.
- II. There shall be one end semester external examination of each course in every semester consisting of 70% (70 marks) weight age in theory and practical courses.
- III. Each Theory & Practical course shall have internal assessment of 30% Weight age based on the following Internal written test - 15% (15 marks) Attendance - 05% (5 marks), Seminar-Quiz-work-shop attend/ paper presentation -05% (05 Marks),Class participation in assignments- 05% (05 marks)
- IV. Every student will be required to pass the external examination and internal assessment separately in each course.
- V. The minimum passing standard will be 36% for the external and internal component of each course, i.e. 25 marks out of 70 (external -36% of 70 marks) and 11 marks out of 30 (internal -36% of 30 marks).
- VI.(A) The grades for each course would be decided on the basis of the percentage marks obtained in the end-semester external and internal examinations as per following table:

Percentage / Marks (Normalized)	Grade Points	Grade	Description
Above 85	8.5 – 10.0	O+	Outstanding
70 – 84.99	7.0 – 8.49	O	Excellent
60 – 69.99	6.0 – 6.99	A	Very good
55 – 59.99	5.5 – 5.99	B+	Good
48 – 54.99	4.8– 5.49	B	Fair
36 – 47.99	3.6 – 4.79	C	Average
Below 36	0.0	D (Dropped)	Dropped or Fail

VI.(B) Final Result :

CGPA From-to	Letter Grade	Classification of Final Result
8.5-10	O+	First class with Distinction
7.0-84.99	O	
6.0-6.99	A	First Class
5.5-5.99	B	Higher Second Class
4.8-5.49	B+	Second Class
3.6-4.79	C	Pass Class
Below 3.6 -o.o	D	Dropped or Fail

VII. The semester grade point average (SGPA) will be calculated as an weighted average of all the grade point of the semester courses. That is Semester grade point average (SGPA) = (sum of grade points of all six courses of the semester)/ total credit of the semester as per example given below :

Semester – I

Course No.	Credit	Marks out of 100(%)	Grade	Grade Point	Credit Grade point
Phy – 101	4	65	A	6.5	26
Phy – 101	3	60	A	6.0	18
Bot – 101	4	62	A	6.2	24.8
Bot – 101	3	57	B+	5.7	17.1
Chem – 101	4	55	B+	5.5	22
Chem – 101	3	72	O	7.2	21.6
Ele-101	2	58	B+	5.8	(11.6)
Found - 101	2	44	C	4.4	(10.8)
Total	25				129.5
TotalCredits Without FC&EC	21				

Examples : Conversion of marks into grade points

$$65=60+5=6.0+5 \times (0.99/9.99)=6.0+5 \times 0.1=6.0+0.5=6.5$$

$$57=55+2=5.5+2 \times (0.49 /4.99)=5.5+2 \times 0.1=5.5+0.2=5.7$$

$$72=70+ 2= 7.0 +2 \times (1.49 /14.99)=7.0+2 \times 0.1 = 7.0 +0.2 =7.2$$

$$44=36+8= 3.6 +8 \times (1.19 /11.99)=3.6 +8 \times 0.1 =3.6 +0.8 =4.4$$

VIII. SEMESTER GRADE POINT AVERAGE (SGPA) = Total Credit Grade Points Without FCs and ECs =129.5./ 21 = 6.16

SGPA Sem. I	=	6.16
SGPA Sem. II	=	5.63
SGPA Sem. III	=	6.01
SGPA Sem. IV	=	5.50
SGPA Sem. V	=	5.61
<u>SGPA Sem. VI</u>	=	<u>5.72</u>
Total SGPA	=	34.63

Cumulative Grade Point Average (CGPA) = $34.63 / 6 = 5.77$

CGPA = 5.77 Grade = B+ Class = Higher Second Class CGPA X

10=Percentage e.g. $5.77 \times 10 = 57.7 \%$

- Note:** (1) SGPA is calculated only if the candidate passes in all the courses i.e. get minimum C grade in all the courses.
(2) CGPA is calculated only when the candidate passes in all the courses of all the semesters

IX. The cumulative grade point average will be calculated as the average of the SGPA of all the six semesters, as shown above.

X. For the award of the class CGPA shall be calculated on the basis of :

(a) Marks of End Semester External Examination

And

(b) Total Marks obtained (Marks of End Semester External Examination + Marks of Internal Assessment) for each course. The final Class for B. Sc. Degree shall be awarded on the basis of lowest CGPA of (a) & (b) of fifth & sixth semester examinations. However, the marks of elective courses as well as foundation courses shall not be counted for the award of class, provided a candidate has secured at least minimum passing marks in Elective & Foundation courses both in internal & external examinations.

R. B.Sc 10 - Revision of Syllabi :

- I.** Syllabi of every course should be preferably revised every five years. For example, a syllabus revised in 2016-17 must be revised in 2021-22.
- II.** Revised Syllabi of each semester should be implemented in sequential way.
- III.** In courses, where units/topics relate to governmental provisions, regulations or laws, changes to accommodate the latest developments, are to be made automatically under the information to the Shri Govind Guru University.
- IV.** All formalities for revisions in the syllabi should be completed before the end of the 2nd/4th semester for implementation in the next academic year.
- V.** During every revision, up to twenty percent of the syllabi of each course should be changed so as to ensure the appearance in the examinations of revised syllabi for those students, who have studied the old (unrevised) syllabi without any difficulties.

VI. In case, the syllabus of any course is carried forward without any revision, it shall also be included in the revised syllabi.

R. B. Sc.11-Format of Question paper :

Q.1 From Unit -1	A OR A	7 marks
	B OR B	7 marks
Q.2 From Unit -II	A OR A	7 marks
	B OR B	7 marks
Q.3 From Unit -III	A OR A	7 marks
	B OR B	7 marks
Q.4 From Unit -III	A OR A	7 marks
	B OR B	7 marks
Q.5 shall be	14 questions of 1 mark each. There should be atleast 3 questions of 1 mark each from all the 4 units, remaining 2 questions of 1 mark can be from any unit	

Appendix I

Core Structure for UG B. Sc. [Fire & Safety] – CBCS Programme

Semester – I

Type of Course	Paper No.	Type of Paper	Credit
Elective Course (EC – I)	EC - 101	Fire Tender & Tools/Applied Mathematics	2
Foundation Course (FC-I)	FC – 101	General English	2
Core Course – 1 (CC – 1)	Paper-101	Applied Physics – 101	4
Core Course – 2 (CC – 2)	Paper-101	Applied Chemistry – 101	4
Core Course – 3 (CC – 3)	Paper-101	Fundamental of Fire– 101	4
Core Course – 1 (CC – 1)	*CC-1-Pract.-102	PRAC- Applied Physics -102	3
Core Course – 2 (CC – 2)	*CC-2-Pract.-102	PRAC- Applied Chemistry –102	3
Core Course – 3 (CC – 3)	*CC-3-Pract.-102	PRAC- Fundamental of Fire –102	3
Total Credit			25

Semester – II

Type of Course	Paper No.	Type of Paper	Credit
Elective Course (EC – II)	EC - 102	Industrial Safety Management/Applied Electrical	2
Foundation Course (FC-II)	FC – 102	Communication Skills	2
Core Course – 1 (CC – 1)	Paper-103	Fire Fighting Equipments –103	4
Core Course – 2 (CC – 2)	Paper-103	Mechanics of Solids & Town Planning – 103	4
Core Course – 3 (CC – 3)	Paper-103	Search & Rescue Techniques & Paramedics– 103	4
Core Course – 1 (CC – 1)	*CC-1-Pract.-104	PRAC- Fire Fighting Equipments – 104	3
Core Course – 2 (CC – 2)	*CC-2-Pract.-104	PRAC- Mechanics of Solids & Town Planning – 104	3
Core Course – 3 (CC – 3)	*CC-3-Pract.-104	PRAC- Search & Rescue Techniques & Paramedics –104	3
Total Credit			25

Semester – III

Type of Course	Paper No.	Type of Paper	Credit
Elective Course (EC – II)	EC - 201	Safety in Docks & Ship Breaking Industry/Professional Growth in Safety Organization	2
Foundation Course (FC-II)	FC – 201	General English	2
Core Course – 1 (CC – 1)	Paper-201	Fire Protection System-201	4
Core Course – 2 (CC – 2)	Paper-201	Hydraulics & Pumps-201	4
Core Course – 3 (CC – 3)	Paper-201	Safety in Construction Industry-201	4
Core Course – 1 (CC – 1)	*CC-1-Pract.-202	PRAC- Fire Protection System – 202	3
Core Course – 2 (CC – 2)	*CC-2-Pract.-202	PRAC- Hydraulics & Pumps– 202	3
Core Course – 3 (CC – 3)	*CC-3-Pract.-202	PRAC- Safety in Construction Industry – 202	3
Total Credit			25

Semester – IV

Type of Course	Paper No.	Type of Paper	Credit
Elective Course (EC – II)	EC - 202	Gujarat Factories Act & Rules/Auto Cad & Engineering Drawing & Fire Modeling	2
Foundation Course (FC-II)	FC – 202	Scientific Writing	2
Core Course – 1 (CC – 1)	Paper-203	Safety in Hydrocarbon Industry-203	4
Core Course – 2 (CC – 2)	Paper-203	Automobile Engineering-203	4
Core Course – 3 (CC – 3)	Paper-203	Fire Prevention & Protection-203	4
Core Course – 1 (CC – 1)	*CC-1-Pract.-204	PRAC- Safety in Hydrocarbon Industry -204	3
Core Course – 2 (CC – 2)	*CC-2-Pract.-204	PRAC- Automobile Engineering -204	3
Core Course – 3 (CC – 3)	*CC-3-Pract.-204	PRAC- Fire Prevention & Protection -204	3
Total Credit			25

Semester – V

Type of Course	Paper No.	Type of Paper	Credit
Elective Course (EC – II)	EC - 301	Industrial Hygiene & Health/Explosive, Radio Active Material & Communication	2
Foundation Course (FC-II)	FC – 301	General English	2
Core Course – 1 (CC – 1)	Paper-301	Special Fire Hazards-301	4
Core Course – 2 (CC – 2)	Paper-301	Accident Investigation-301	4
Core Course – 3 (CC – 3)	Paper-301	Salvage & Fire Safety Laws- 301	4
Core Course – 1 (CC – 1)	*CC-1- Pract.-302	PRAC- Special Fire Hazards -302	3
Core Course – 2 (CC – 2)	*CC-2- Pract.-302	PRAC- Accident Investigation -302	3
Core Course – 3 (CC – 3)	*CC-3- Pract.-302	PRAC- Salvage & Fire Safety Laws -302	3
Total Credit			25

Semester – VI

Type of Course	Paper No.	Type of Paper	Credit
Elective Course (EC – II)	EC – 302	Explosion & Fire Dynamics/Disaster Management	2
Foundation Course (FC-II)	FC – 302	Soft Skill Development	2
Core Course – 1 (CC – 1)	Paper-303	Fire Safety Risk Assessment & Management-303	4
Core Course – 2 (CC – 2)	Paper-303	Fire Safety Design-303	4
Core Course – 3 (CC – 3)	Paper-303	Health, Safety & Environment-303	4
Core Course – 1 (CC – 1)	*CC-1- Pract.-304	PRAC- Fire Safety Risk Assessment & Management -304	3
Core Course – 2 (CC – 2)	*CC-2- Pract.-304	PRAC- Fire Safety Design - 304	3
Core Course – 3 (CC – 3)	*CC-3- Pract.-304	PRAC- Health, Safety & Environment -304	3
Total Credit			25