



Shri Govind Guru University

(Established Vide Gujarat Act. No. 24/2015)



CURRICULUM AND CREDIT FRAMEWORK

FOR

BACHELOR OF SCIENCES

(ALL SUBJECTS)

AS PER

NATIONAL EDUCATION POLICY 2020

FACULTY OF SCIENCES

SHRI GOVIND GURU UNIVERSITY

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Faculty of Sciences
SHRI GOVIND GURU UNIVERSITY, VINZOL (GODHRA)
Ordinances & Regulations for the
Degree of Bachelor of Sciences (B.Sc.)
(As Per NEP 2020)
Effective from June-2023

Introduction

The National Education Policy (NEP) 2020 (hereafter referred to as NEP or Policy) recognizes that higher education plays an extremely important role in promoting human as well as societal well-being and in developing India as envisioned in its Constitution - a democratic, just, socially conscious, cultured, and humane nation upholding liberty, equality, fraternity, and justice for all. It notes that “given the 21st -century requirements, quality higher education must aim to develop good, thoughtful, well-rounded, and creative individuals”. The NEP 2020 states, “Assessments of educational approaches in undergraduate education that integrate the humanities and arts with Science, Technology, Engineering and Mathematics (STEM) have consistently shown positive learning outcomes, including increased creativity and innovation, critical thinking and higher-order thinking capacities, problem-solving abilities, teamwork, communication skills, more in-depth learning and mastery of curricula across fields, increases in social and moral awareness, etc., besides general engagement and enjoyment of learning” Further, it also recommends that “the undergraduate degree will be of either 3 or 4-year duration, with multiple exit options within this period, with appropriate certifications, e.g., a UG certificate after completing 1 year in a discipline or field including vocational and professional areas, or a UG diploma after 2 years of study, or a Bachelor’s degree after a 3-year programme. The 4-year multidisciplinary Bachelor's programme, however, shall be the preferred option since it allows the opportunity to experience the full range of holistic and multidisciplinary education in addition to a focus on the chosen major and minors as per the choices of the student”. In accordance with the NEP 2020, the UGC has formulated a new student-centric “**Curriculum and Credit Framework for Undergraduate Programmes (CCFUP)**” incorporating a flexible choice-based credit system, multidisciplinary approach, and multiple entry and exit options. This will facilitate students to pursue their career path by choosing the subject/field of their interest

ORDINANCE AND REGULATIONS:

Ordinances & Regulations for the Degree of Bachelor of Sciences (As Per NEP 2020) are as under:

O. GEN. B. Sc. – 1:

A candidate for the Degree of Bachelor of Sciences must have passed the higher secondary (12th standard) school certificate examination of the Gujarat Secondary and Higher Secondary Education Board or an examination recognized as equivalent there to with the attainments of subject/subjects mentioned and will be required to pass all six Semester End Evaluation (SEE) including Continuous and Comprehensive Evaluation (CCE) for the Degree of Bachelor of Sciences and for the 4 Year Degree of Bachelor of Sciences (Honours / Honours with research) students will be required to pass all eight Semester End Examinations.

O. GEN. B. Sc. – 2:

Definitions of Key Words:

1. **Academic Year:** A semester comprises 90 working days and an academic year is divided into two semesters.
2. **Course:** Usually referred to, as 'paper/subject' is a component of a programme. All courses need carry the same weightage. The courses should define learning objectives and learning outcomes. A course designed to comprise lectures outreach activities / project work / viva /seminars/assignment/ presentations etc. or a combination of some of these.
3. **Programme:** An educational programme leading to award of the Certificate in Sciences, Diploma in Sciences , Degree Certificate and Honours or Honours with Research Degree in Sciences.
4. **Major Discipline:** Major discipline is the discipline or subject of main focus and the degree will be awarded in that discipline. Students should secure the prescribed number of credits (about 50% of total credits) through core courses in the major discipline.
5. **Minor Discipline:** Minor discipline helps a student to gain a broader understanding beyond the major discipline. For example, if a student pursuing Physics major obtains a minimum of 16 credits (50% of total credits of minor) from a bunch of courses in Botany then the student will be awarded B.Sc. degree in Physics with a Minor in Botany.

6. **Multidisciplinary Courses:** These courses are intended to broaden the intellectual experience and form part of liberal arts and science education.

7. **Ability Enhancement Courses:** The courses aim at enabling the students to acquire and demonstrate the core linguistic and other skills, including critical reading and expository and academic writing skills, that help students articulate their arguments and present their thinking clearly and coherently and recognize the importance of language as a mediator of knowledge and identity.

8. **Skills Enhancement Courses:** These courses are aimed at imparting practical skills, hands-on training, soft skills, etc., to enhance the employability of students. The institution may design courses as per the students' needs and available institutional resources.

9. **Value-Added Courses:** The course aims at enabling the students to acquire and demonstrate the knowledge and understanding of contemporary India with its historical perspective, the basic framework of the goals and policies of national development, and the constitutional obligations with special emphasis on constitutional values and fundamental rights and duties.

10. **Summer Internship /Apprenticeship:** It is the key aspect of the new UG programme . All students will also undergo Internships / Apprenticeships in a firm, industry, or organization or Training in labs with faculty and researchers in their own or other HEIs/research institutions during the summer term. Students will be provided with opportunities for internships with local industry, business organizations, health and allied areas, local governments (such as panchayats, municipalities), Parliament or elected representatives, media organizations, artists, crafts persons, and a wide variety of organizations so that students may actively engage with the practical side of their learning and, as a by-product, further improve their employability.

11. **Vocational Courses:** Vocational Education and Training will form an integral part of the undergraduate programme to impart skills along with theory and practical.

12. **Research Dissertation:** Students choosing a 4-Year Bachelor's degree (Honours with Research) are required to take up research dissertation under the guidance of a faculty member. The students are expected to complete the Research Dissertation in the eighth semester.

13. **Credit:** It determines the number of hours of instruction required per week over the duration of a semester. **One credit is equivalent to one hour of teaching per week.** One credit for tutorial work means one hour of engagement per week.

A **one-credit course in practicum or lab work**, community engagement and services, and field work in a semester **mean two-hour engagement per week.** A one-credit of Seminar or Internship or Studio activities or Field practice/projects or Community engagement and service means two-hour engagements per week.

14. **Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B, C, P, F and Ab.

15. **Credit Point:** It is the product of grade point and number of credits for a course.

16. **Semester Grade Point Average (SGPA):** It is a measure of performance or work done in a semester. It is ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

17. **Cumulative Grade Point Average (CGPA):** it is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

O. GEN. B. Sc. – 3:

B. Sc. Degree programme is of three/four academic year's duration consisting of six/eight semesters, which will be required to be completed within 7 years from the date of his/her first admission in the First Semester.

O. GEN. B. Sc. – 4:

B. Sc. Three years (six semesters)/ Four years (eight semesters) Degree programme is a regular fulltime programme. A student can pursue two full time academic programmes in physical mode provided that in such cases, class timing for one programme do not overlap the class timings of the other programme. Students can pursue two academic programmes, one in full time and physical mode and another in Open and Distance Learning (ODL)/ Online mode; or up to two ODL/Online programmes simultaneously.

O. GEN. B. Sc. – 5:

Medium of Instruction & Examination shall be **English or Gujarati** as the case may be which will not be changed during the entire Degree programme.

O. GEN. B. Sc. – 6:

B. Sc. Programme of the University as per NEP 2020 is implemented along with the Continuous and Comprehensive Evaluation (CCE) and minimum attendance is at least 75% attendance.

O. GEN. B. Sc. – 7:

Students will have to comply with the requirements relating to physical Training, Athletics, Sports, N.C.C. or N.S.S. or Swachh Bharat Abhiyan / Major Sports or Shram Dan Yojana of government of Gujarat as the case may be.

O. GEN. B. Sc. – 8:

Admission granted by the affiliated college/institution to any student shall be provisional till the enrolment/registration/enlistment is made by the University & in case admission is granted at the risk of student on the basis of provisional eligibility certificate the conditions & instructions given by the University Circular published from time to time should be complied within the time limit fixed by the University, term kept by the such a student will be forfeited and **no fees on any account will be refunded.**

O. GEN. B. Sc. – 9:

All admitting authority (Including the College/University Department/ P. G. Centre/Institute or centralized admission committee etc.) will have to strictly observe the provisions of reservation policy of the Govt./U.G.C./Rehabilitation Council of India etc. before admission process is undertaken the authority will ascertain quota & number of seats available for reserved class candidates and allotted to the eligible candidates. The data based information should also be provided to the University only after conclusion of entire process of admission.

O. GEN. B. Sc. – 10:

The main aim of the NEP-2020 is to facilitate Multiple Entry and Exit options with UG certificate/UG diploma/ or degree, depending upon the number of credits secured. The Entry and Exit options for students, who enter the B. Sc. programme, are as follows:

First Year:

Entry 1: The entry requirement for Level 4.5 is Higher Secondary School Leaving Certificate obtained after the successful completion of Grade 12 and should meet the entrance requirements, availability of seats, admission and fees regulations of the institutions. A programme of study leading to entry into the first year of the Bachelor's degree is open to those who have met the eligibility requirements, including specified levels of attainment at the higher secondary level of education specified in the programme admission regulations. Admission to the Bachelor degree programme of study is based on the evaluation of documentary evidence (including the academic record) of the applicant's ability to undertake and complete a Bachelor's degree programme.

Exit 1: UG Certificate: A UG certificate shall be awarded if a student **exit at the end of year one (two semesters) after successfully securing 44 credits**. The student **also needs to secure 4 additional credits** in summer internship/Apprenticeship in the major discipline or multidiscipline offered course. These students are allowed to re-enter the degree programme within three years and complete the degree programme within the stipulated maximum period of seven years.

Second Year

Entry 2. The entry requirement for Level 5.0 is a Certificate in Bachelor of Sciences obtained from any institution after completing the first year (two semesters) of the undergraduate programme and meet the entrance requirements, availability of seats and admission and fees regulations of the institutions.

Exit 2: UG Diploma: A UG diploma shall be awarded if a student **exit after two years (four semesters) after successfully securing 88 credits** from level 4.5 to 5.0, with 44 credits at level 5.0. The **student also needs to secure 4 additional credits** in summer internship/Apprenticeship in major discipline or multidiscipline offered course. These students are allowed to re-enter within a period of three years and complete the degree programme within the maximum period of seven years.

Third Year:

Entry 3. The entry requirement for Level 5.5 is a UG Diploma obtained from any institution after completing two years (four semesters) of the undergraduate and meet the entrance requirements, availability of seats and admission and fees regulations of the institutions.

Exit 3: Bachelor of Sciences Degree: On successful completion of three years, the relevant Bachelor of Sciences Degree shall be awarded (Level 5.5). A Bachelor's degree requires minimum 132 credits from levels 4.5 to 5.5, with minimum 44 credits at level 4.5, minimum 44 credits at level 5.0, and minimum 44 credits at level 5.5.

Fourth year:

Entry 4. A student seeking admission to a 4-year bachelor of Sciences degree (Honours/Honours with Research) (Level 6.0) in a specified field of learning, must have completed all requirements of the relevant three-year bachelor of Sciences degree (Level 5.5) and meet the entrance requirements, availability of seats and admission and fees regulations of the institutions. After completing the requirements of a three-year Bachelor's degree programme, candidates shall be allowed to continue studies in the fourth year of the undergraduate programme to pursue and complete the Bachelor's degree in Honours and candidates who meet a minimum 75% shall be allowed to continue studies in the fourth year of the undergraduate programme to pursue and complete the Bachelor's degree in Honours with Research.

Exit 4: 4-year UG Degree (Honours): A four-year UG Honours degree in the major discipline will be awarded to those who complete a four-year degree programme with 176 credits

4-year UG Degree (Honours with Research): Students who secure 75% marks and above in the first six semesters and wish to undertake research at the undergraduate level can choose a research stream in the fourth year. They should do a research dissertation under the guidance of a faculty member of the University/College. The research dissertation will be in the major discipline. The students, who secure 176 credits, including 12 credits from a research dissertation, are awarded UG Degree (Honours with Research).

Summary of Multiple Exit System:

No	Awarded with	Awarded when
1	UG Certificate	UG Certificate will be awarded when a student exits after completion of first year with 44 credits along with successfully completion of vocational course of 4 credits.

2	UG Diploma	UG Diploma will be awarded when a student exits after completion of second year with 88 credits along with successfully completion of vocational course of 4 credits.
3	UG Degree	Bachelor of Arts Degree will be awarded when a student exits after completion of 3 years with 132 Credits.
4	UG Degree Honours	Bachelor of Arts Degree (Honours) will be awarded when a student exits after completion of 4 years with 176 Credits.
5	UG Degree Honours with Research	Bachelor of Arts Degree (Honours with Research) will be awarded when a student exits after completion of 4 years with 176 Credits including 12 credits from a research dissertation.

O. GEN. B.Sc. – 11:

The Departments offering a 4-year UG Degree (Honours with Research) must have the required infrastructure such as the library, access to journals, computer lab and software/statistical software and at least two permanent faculty members who are recognized as Ph.D. supervisors. The Departments already recognized for conducting the Ph.D. programme may conduct a 4-year UG Degree (Honours with Research) without obtaining any approval from the affiliating University.

[Follow the instructions and eligibility criteria's per Standard Operating Procedure (SOP) released by Government of Gujarat for all its institutions who can offer courses in Fourth year.]

O. GEN. B. Sc. – 12:

Lateral entry in different institutions: A student who wants to change the institution in continuation of academic year, he/she can change the institution based on minimum 70% matching of course curriculum and meet the entrance requirements, availability of seats and admission & fees regulations of that HEIs. All other conditions will be application to complete the programme.

O. GEN. B.Sc. – 13:

A regular candidate of an affiliated college having obtained minimum marks for passing in CCE (i.e.37% of 50) and SEE (i.e. 37% of 50) or more but fails to obtain minimum 37 % aggregate marks will be required to

re-appear in both the component viz CCE and SEE. In such a case candidate will not be required to keep term for the respective semester. The marks of the examination in which the student has passed will be carried forward.

No	Theory (SEE)	Internal (CCE)	Result	Require to Appear in Exam
1	Pass	Pass	Pass	None to appear
2	Pass	Fail	Fail	Internal only
3	Fail	Pass	Fail	Theory Only
4	Fail	Fail	Fail	Both (Theory & Internal)

O. B.Sc. – 1

Admission to the First Semester Bachelor of Sciences will be granted to an applicant who is eligible to apply for admission to the First Semester of B. Sc. as per University rules strictly in order of merit determined on the basis of marks which is taken into account while determining the percentage by the examining authority. Preference will be given to those who have pass H.S.C. (Std. 12th) examination in the immediate preceding year.

O. B.Sc. – 2

Defence personnel dependent or from any other recognized university who has on account of transfer from other state to the state of Gujarat passed First or Second year examination by obtaining 40% of marks or equivalent grade under three years Degree programme from other recognized University shall be eligible to obtain admission in semester – III or V (as the case may be) Provided.:

- That the exam & subjects with which he/she has passed above said examinations are the same or comparable/convertible with the teaching & examination scheme of the University.
- That if he/she applies for admission in the mid of semester but within 15 days from the date of his/her parents joining in the state of Gujarat, the deficiency in attendance up to 25% will be condoned by the principal of the concerned affiliated college.

- Admitted candidate will have to keep terms for semester – III to VI or V & VI as a regular other candidate & all applicable provisions of the University Ordinances & Regulations & Rules shall apply to the candidate.

- The result of such a candidate at the end of semester – III, IV & V will be declared in normal course with other candidates result. The result of semester VI (Final semester) will be declared by converting percentage of marks or grade which candidate has obtained at the examination of other University in first/second year as per provisions contained in Curriculum as per NEP 2020 introduced by the University w.e.f. academic year 2023- 2024.

If a candidate fails to obtain minimum marks for passing in particular course / subject at University Semester End Examination, he/she will be required to reappear in that course/subject without keeping term for that semester. The candidate will have to reappear in the semester end examination by paying fresh examination fee along with application form such candidate when he/she obtains minimum or more than minimum marks for passing in the subject / course his/her marks of reappearance will be carry forwarded for determining his/her class/CGPA.

O. B. Sc. – 4

Fifty percent marks of internal evaluation shall be within the exclusive pure view of the concerned affiliated college which requires purity, transparency accuracy in the evaluation & assessment of students. Benefits of Re-assessment scheme will not be made available to the students in this regard.

O. B.Sc. – 5

To successfully complete a course, a candidate will be required to obtain minimum 37% of 50 marks in CCE (Internal) examination as well as 37% of 50 marks in **Semester End Examination** (External examination) and should have also obtained 37% of marks in aggregate in each of the course and necessary credits as prescribed in the Curriculum/syllabus.

R. B.Sc. – 1

The candidate admitted to the first semester of B. Sc. will be eligible to appear at the University Semester End Examination provided he/she fulfils all the conditions, mentioned in the Ordinances, Regulations & rules of the University.

R. B.Sc. – 2

The scheme of examination and distribution of marks for the various subjects of study at the First, Second, Third, Fourth, Fifth and Sixth, Seventh and Eighth semester of B. Sc. Examination under three years/four years course will be the same as shown in the Course Structure.

R. B.Sc. – 3

Candidates desirous of appearing at the any Semester End Examination for Bachelor of Sciences Degree examination, must forward their applications in the prescribed form accompanied by a certificate of attendance to the Registrar of the University through the Principal of the college on or before the date prescribed for the purpose.

R. B.Sc. – 4

Marks and Credit Hours:

(1) **4 Credit Theory Course:** Total marks of each theory course are 100

(University Examination of 100 Marks (50%) + Internal Examination of 100 Marks (50%).

Total credit/lecture hours of each course are 60.

(2) **2 Credit Theory Course:** Total marks of each theory course are 50

(University Examination of 50 Marks (50%) + Internal Examination of 50 Marks (50%).

Total credit/lecture hours of each course are 30.

R. B. Sc. – 5

Students can choose courses from the available Pool of Course for B. Sc. Semester I to VIII (Level 4.5 to 6) as under:

1. MAJOR COURSES:

The students are expected to comply with a particular discipline/ field/ domain. Course/ Subject that is mandatory for a student to study as a core requirement is termed as Major (Core) Course. This course would provide opportunity for a student to pursue in-depth study of a particular subject or discipline. Students may be allowed to change major within the broad discipline at the end of the second semester by giving her/ him sufficient time to explore interdisciplinary courses during the first year. At the end of the second semester, students can decide either to continue with the chosen major or request a change of major provided he fulfils the eligibility criteria for changing stream.

The Minor courses include vocational courses which will equip the students with job-oriented skills.

Change of Major: Students can opt for a change of major within the broad discipline . For example, Natural and Physical Sciences, Mathematical, Statistics, and Computational Sciences; at the end of the first year.

A student, who has planned to pursue B.Sc. Physics in first year, if he/ she wants to change to B.Sc Mathematics after one year of study, institute can allow him//her to continue to pursue his/her study in B.Sc Mathematics provided the fulfilment of entry eligibility criteria, availability of seats, assessment of capacity of students, and by providing the required extra course/ bridge courses (a student may be suggested to attend the ongoing classes/ extra classes which he has missed in First year). After three/ four years of study, he/ she will be awarded with UG Degree/ Honours/ Honour with research in Mathematics.

If he/ she exits after First year of study in B.Sc. Physics, he will be awarded UG Certificate in Physics.

Single Major/Double Major:

Bachelor's Degree Programmes with Single Major: A learner must secure a minimum 50% of total credits (68/92 credits) from the major discipline courses for the 3-years/4-years bachelor's degree to be awarded a single major degree.

For example, in a 3-year UG programme, total number of credits to be earned is 132, a student of Physics with a minimum of 66 credits will be awarded a B.Sc. in Physics with a single major. Similarly, in a 4-year UG programme, total number of credits to be earned is 176, a student of Physics with a minimum of 88 credits will be awarded a B.Sc. (Honours/Honours with Research) in Physics in a 4-year UG programme with single major.

Bachelor's Programmes with Double Major: A learner must additionally secure a minimum 40% of total credits (53/70 credits) from the second major discipline specific courses for the 3-years/4-years bachelor's degree to be awarded a double major degree. In short, student can opt two major (core) subjects as per their own choices.

The main reason for double major study is to have a grip over two subjects which would give the student an edge in the job market. Moreover, in order to study one discipline, a student must have prior knowledge of another discipline.

For example, the knowledge of mathematics is important to the study of computer sciences. In a 3-year UG

programme, the total number of credits to be earned is 132, a student of Mathematics with a minimum of 53 credits will be awarded a double major B.Sc. in Computer sciences with Mathematics.

Similarly, in a 4-year UG programme, the total number of credits to be earned is 176, a student of Mathematics with a minimum of 70 credits will be awarded a double major B.Sc. (Honours/Honours with Research) in Computer sciences with Mathematics in a 4-year UG programme.

2. MINOR COURSES:

It is very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope, or which enables exposure to some other discipline/ subject/domain or nurtures the candidate's skills. It may be same or other discipline specific.

Students will have the option to choose courses from disciplinary/interdisciplinary minors and skill based courses relating to a chosen vocational education programme. Students who take enough courses in a discipline or an interdisciplinary area of study other than the chosen major will qualify for a minor in that discipline or in the chosen interdisciplinary area of study. A student may declare the choice of the minor and vocational stream at the earlier part of the beginning of a semester after exploring various courses.

1. 50% of the total credits from minors must be secured in the relevant subject/discipline and another
2. 50% of the total credits from a minor can be earned from any discipline as per student's choice.

VOCATIONAL EDUCATION AND TRAINING: Vocational Education and Training will form an integral part of the undergraduate programme to impart skills along with theory and practical. These courses must be aligned with **National Skills Qualification Framework (NSQF)**..

3. MULTIDISCIPLINARY COURSES/ALLIED COURSES/INTERDISCIPLINARY (MDC):

All UG students are required to undergo 3 introductory-level courses (4 credits of each course) relating to any of the broad disciplines given below. These courses are intended to broaden the Intellectual experience and form part of liberal arts and science education. Students are not allowed to choose or repeat courses already undergone at the higher secondary level (12th class) in the proposed major and minor courses of the same level under this category.

4. ABILITY ENHANCEMENT COURSE (AEC):

These courses shall be offered in combination of courses like Modern Indian Language (MIL) & English language focused on language and communication skills. The aim of these courses is to acquire and demonstrate the core linguistic skills, including critical reading and expository and academic writing skills to the students. The HEIs may introduce courses relevant to the discipline or common to all UG programmes.

5. SKILLS ENHANCEMENT COURSES (SEC):

These courses are aimed at imparting practical skills, hands-on training, soft skills, life skills, etc., to enhance the employability of students. The HEIs may introduce courses relevant to the discipline or common to all UG programmes.

6. VALUE ADDED COURSE (VAC):

The course aims at enabling the students to acquire knowledge and understanding and equip them with the ability to apply the acquired knowledge, skills, attitudes, and values to take appropriate actions in professional and day to day life. These courses may be relevant to Indian Knowledge System, environmental science/ education, digital and technical solutions and health & wellness, yoga education, sports, and fitness. The HEIs may introduce courses relevant to the discipline or common to all UG programmes.

Students can choose courses from the above pool of the courses. As per UGC Curriculum and Credit Framework for Undergraduate Programs, it has paved the way to offer a maximum 40% of the credit/learning through online courses. The courses shall be approved by institutions as per the existing UGC regulations.

Whereas it provides the flexibility to students to switch to alternate modes of learning i.e., Offline, ODL, Online Learning and Hybrid mode of learning.

SWAYAM (**Study Webs of Active-Learning for Young Aspiring Minds**) platform has been made available by the Government of India for online courses. The online learning courses available on the SWAYAM Platform will be considered for credit transfer. Any regular student will be permitted to opt for only up to 40% of the total courses being offered, through the online learning courses provided through the SWAYAM platform.

Students opting for an online course shall be required to register for MOOCs (**Massive Online Open Courses**) course/paper through SWAYAM and it will be mandatory for them to share necessary information with the college/institution.

Students can pursue the MOOCs on SWAYAM platform which will be offered by:

- UGC (University Grant Commission)
- CEC (Consortium of Educational Communication)
- IIM-B (Indian Institute of Management- Bangalore)
- NPTEL (National Programme on Technology Enhanced Learning)
- IGNOU (Indira Gandhi National Open University)
- NITTTR (National Institutes of Technical Teachers and Training Research)
- AICTE (All India Council for Technical Education)

R. B.Sc. – 6

The new curriculum as per NEP 2020 is not only student centric in the teaching-learning processes but also in their evaluation process. The evaluation consists of the following two components: The component consists of **Continuous and Comprehensive Evaluation (CCE)** and the second component consists of the Semester end examination. The division of marks between the two shall be 50:50 in the NEP 2020; the evaluation process shall follow the norm that the faculty, who teaches the course, shall conduct the Continuous and Comprehensive Evaluation (CCE). The concerned faculty shall be accountable for transparency and reliability of entire evaluation of the student in the concerned Course. The CAC (**College Advisory Council**) shall announce policy for CCE for all the Courses in the college in the beginning of the Semester the same shall be communicated to the students.

In each course, every credit carries 25 marks, of which 50% marks is assigned for CCE and rest 50% marks for SEE. The 50% marks assigned to the CCE is distributed between the continuous classroom evaluation and mid-term evaluation. The pattern may be as follow:

Credit Structure for B. Sc. (3 Years)

Year	Semester	Major Courses (T+P= Total)	Minor Courses (T+P= Total)	Multi/Inter-Disciplinary Courses (T+P= Total)	Skill Enhancement Courses (SEC)	Ability Enhancement Courses (AEC)	Value Added Courses (VAC)	Total Credit
First	I	8	4	4	2	2	2	22
First	II	8	4	4	2	2	2	22
Second	III	12	-	4	2	2	2	22
Second	IV	12	4	-	2	2	2	22
Third	V	12	8	-	2	-	-	22
Third	VI	12	4	-	4	2	-	22
Total	I TO IV	64	24	12	14	10	8	132

Credit Structure for B. Sc. (3 Years)

Year	Semester	Major Courses (T+P= Total)	Minor Courses (T+P= Total)	Multi/Inter-Disciplinary Courses (T+P= Total)	Skill Enhancement Courses (SEC)	Ability Enhancement Courses (AEC)	Value Added Courses (VAC)	Total Credit
First	I	4+0 = 4 0+4 = 4	2+2 = 4	2+2 = 4	2	2	2	22
First	II	4+0 = 4 0+4 = 4	2+2 = 4	2+2 = 4	2	2	2	22

Second	III	4+0 = 4 4+0 = 4 0+4 = 4	-	2+2 = 4	2	2	2	22
Second	IV	4+0 = 4 4+0 = 4 0+4 = 4	2+2 = 4	-	2	2	2	22
Third	V	4+0 = 4 4+0 = 4 0+4 = 4	4+0 = 4 0+4 = 4	-	2	-	-	22
Third	VI	4+0 = 4 4+0 = 4 0+4 = 4	2+2 = 4	-	2+2 = 4	2	-	22
Total	I TO IV	64	24	12	14	10	8	132

Unit wise distribution for various courses

Major Course:

- 4 credit course (Theory): 4 unit
- 4 credit course (Practical): 2 practical (A & B)

Minor & Multidisciplinary Course:

- 2 credit course (Theory): 3 unit
- 2 credit course (Practical): 1 practical

Skill Enhancement, Ability Enhancement & Value Added Course:

- 2 credit course (Theory): 3 unit

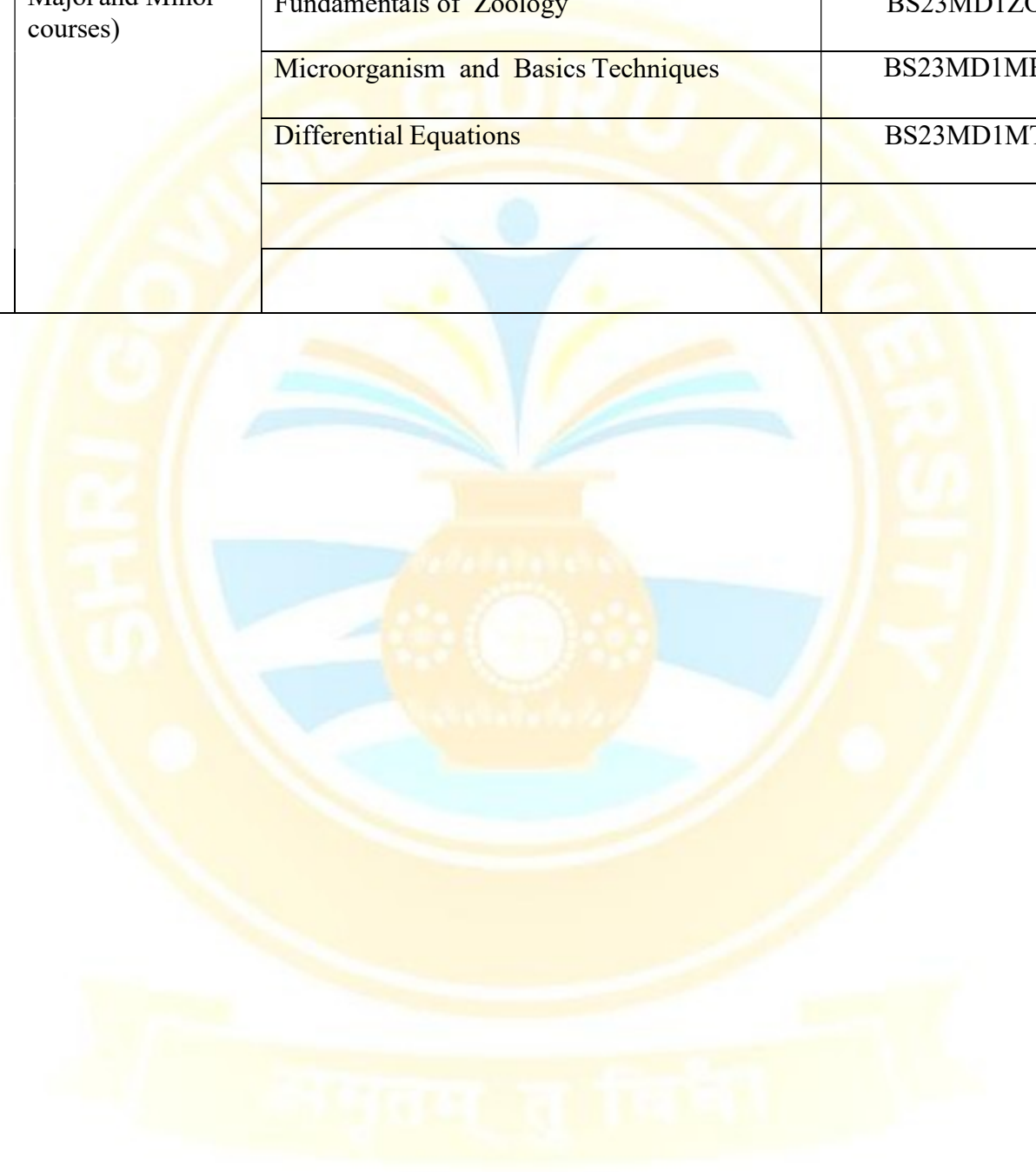
Subject specific and Elective papers for various courses

No.	Course Category	Course Title	Course Code
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1	Major Course 1 (Select any one courses)	Physics	BS23MJ1PH1
		Chemistry	BS23MJ1CH1
		Botany	BS23MJ1BO1
		Zoology	BS23MJ1ZO1
		Microbiology	BS23MJ1MB1
		Mathematics	BS23MJ1MT1
		Biochemistry	BS23MJ1BC1
		Biotechnology	BS23MJ1BT1
2	Major Course 2 (Select any one related to Major-1)	Physics	BS23MJ1PH2
		Chemistry	BS23MJ1CH2
		Botany	BS23MJ1BO2
		Zoology	BS23MJ1ZO2
		Microbiology	BS23MJ1MB2
		Mathematics	BS23MJ1MT2
		Biochemistry	BS23MJ1BC2
		Biotechnology	BS23MJ1BT2

3	Minor (Select any one other than the Major and MDC courses)	Fundamental of Physics	BS23MN1PH1
		General Chemistry	BS23MN1CH1
		Algae, Fungi and Plant Anatomy	BS23MN1BO1
		Basics Aspects of Zoology	BS23MN1ZO1
		Basics of Microbiology	BS23MN1MB1
		Linear Algebra –I	BS23MN1MT1
		Introduction of Biotechnology	BS23MN1BT1

4	Multidisciplinary Courses (Select any one other than the Major and Minor courses)	Ray Optics	BS23MD1PH1
		Industrial Aspects of Chemistry	BS23MD1CH1
		Plant Resources and Utilization	BS23MD1BO1
		Fundamentals of Zoology	BS23MD1ZO1
		Microorganism and Basics Techniques	BS23MD1MB1
		Differential Equations	BS23MD1MT1



No.	Course Category	Course Title	Course Code
5	AEC Ability Enhancement Course (Select Any One)	Gujarati	BS23AE1GJ1
		Sanskrit	BS23AE1SK1
		Hindi	BS23AE1HN1
		English	BS23AE1EG1

No.	Course Category	Course Title	Course Code
6	Skill Enhancement courses (Select any one)	Electronic Gadgets and Home Appliances	BSC23SE101
		Basics of Analytical Chemistry	BSC23SE102
		Horticulture and Gardening	BSC23SE103
		Economic Zoology	BSC23SE104
		Introduction to Food Hygiene and Food Testing	BSC23SE105
		Discrete Mathematics	BSC23SE106

No.	Course Category	Course Title	Course Code
7	VAC Value Added Course (Select Any One)	Indian Astronomy	BSC23VA101
		Renewable Energy and Harvesting	BSC23VA102
		Public Health	BSC23VA103
		NSS	BSC23VA104
		NCC	BSC23VA105
		Indian Mathematics	BSC23VA106
		Yoga Education	BSC23VA107

Marking Scheme Structure for B.Sc. Semester-1 & 2

(To be analyzed & finalized by SGGU)

Course Name	Course Type	Credit	Weekly Contact Hours	Exam Duration (Hours)	Marking Scheme (Total/Passing) (As per Shri Govind Guru University Scheme)		
					Internal (CCE)	External (SEE)	Total
Major Course-1	Theory	4	4				
Major Course-2	Practical	4	8				
Minor Course	Theory	2	2				
	Practical	2	4				
Multidisciplinary course (MDC)	Theory	2	2				
	Practical	2	4				
Skill Enhancement Course (SEC)	Elective Course	2	2				
Ability Enhancement Course (AEC)	Gujarati Hindi Sanskrit English	2	2				
Value Added Course (VAC)	Elective Course	2	2				
		22	14+16=30				

Continuous and Comprehensive Evaluation (CCE):

Subject-wise CCE will be undertaken by the concerned faculty member. The mode of evaluation will be decided by the faculty member concerned with the subject. Normally CCE consists of class participation, case analysis and presentation, assignment, tutorials, slip tests (announced/surprised), quizzes, attendance etc. or any combination of these. The students are expected to submit their answer scripts/ reports of internal evaluation within the stipulated time. Failure to do so may result in the script not being valued. Another part of CCE consists of mid-term written evaluation, which is compulsory for all students. It can be done in a scheduled manner. The duration of the mid-term evaluation shall be one hour.

Semester End Evaluation (SEE):

The SEE carries 50% of the marks assigned to a course. SEE shall be of 2 1/2 hours for 4 credit course and 2 hours in case of 2 credit courses. The controller of the examination will conduct these examinations. Paper setting and evaluation will be done by the external examiners to an extent of 50% of the evaluation process. This examination shall be conducted as per a schedule which shall be notified in advance.

The backlog exam will be conducted twice a year just after the result declared of the semester evaluation. Students shall have a second chance to clear their backlog and avoid the burden to carry forward the backlog with the next semester exam.

Appearance in all the evaluations is mandatory and no exemption can be granted except in the following case:

1. In case of inability to attend the exam due to reasons considered genuine by the controller of examination in consultation with the Director/Board.
2. In case of medical emergency, a certificate from the registered medical practitioner must be produced before the commencement of exams. The evaluation board will then take final decision on the recommendation for exemption.

Eligibility Criteria to appear in SEE:

To be able to appear for the SEE, a student must comply with the following conditions:

1. Should have at least 75% of attendance in all the courses put together
2. Should have at least 70% of attendance in each course/subject
3. Should not have any disciplinary proceedings pending against him/her
4. Should have no pending dues.

Models of evaluation:

Based on the types of evaluation, various models of evaluation implementation are suggested for theory, practical, self-study and work-based learning. The focus of these models is to encourage the students to improve on skills and performance.

Model for Theory Courses		
CCE- 50% (100)		SEE- 50% (100)
Exam Pattern		Marks
1.	Class Test (Best 2 out of 3)	30
2.	Quiz (Best 3 out of 4)	30
3.	Active Learning	10
4.	Home Assignment	10
5.	Class Assignment	10
6.	Attendance	10
Continuous and Comprehensive Evaluation (CCE)		100
Semester-End Evaluation (SEE)		100
Model for Practical Courses		
CCE- 50% (100)		SEE- 50% (100)
Exam Pattern		Marks
1.	Lab work assessment (best 3 out of 4)	45
2.	Viva voce/Lab quiz (best 3 out of 4)	45
3.	Attendance	10
Continuous and Comprehensive Evaluation (CCE)		100
Semester-End Evaluation (SEE)		100

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Practical Examination: Practical examination (wherever applicable) shall be conducted at the end of every semester. The examination shall be conducted as per norms decided by the concerned authority of the University or by the Dean of the Faculty of Sciences shall announce policy for the practical examination in advanced and it shall be made known to the students also in advance. There shall not be internal assessment test for practical/laboratory work.

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Research Dissertation work: The research dissertation work and the Supervisor shall be assigned to the student by the concerned college well in advance. Evaluation of dissertation will be done by the subject experts

appointed by the university. Maximum marks of the dissertation will be 200. Passing standard will be 37% of 200 total marks.

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Semester End Examination (SEE): The duration of the Semester End Examination shall be 2 hours and 30 minutes per theory course of 4 credits and 2 hours per theory course of 2 credits. For practical course considered as per given in the particular curriculum. For more detail see R.B.Sc. 6.

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Letter Grades and Grade Points

The Semester Grade Point Average (SGPA) is computed from the grades as a measure of the student's performance in a given semester. The SGPA is based on the grades of the current term, while the Cumulative Grade Point Average (CGPA) is based on the grades in all courses taken after joining the programme of study. The relative grading system provides the relative performance of a student to a group/class wherein the student is ranked in a group/class based on relative level of achievements. HEIs may also mention the marks obtained by the students in each course and a weightage average of marks on the Grade sheet for the benefit of the students.

Sr. No.	Letter Grade	Grade Point	Marks (In %)
1	O+ (Outstanding)	10	97.0-100
2	A+ (Excellent)	9	87.0-96.9
3	A (Very good)	8	77.0-86.9
4	B+ (Good)	7	67.0-76.9
5	B (Above average)	6	57.0-66.9
6	C (Average)	5	47.0-56.9
7	P (Pass)	4	37.0-46.9
8	F (Fail)	0	Below 37.0
9	Ab (Absent)	0	Absent

Computation of SGPA and CGPA

The UGC recommends the following procedure to compute the **Semester Grade Point Average (SGPA)** and **Cumulative Grade Point Average (CGPA)**:

i. The SGPA is the ratio of the 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 courses undergone by a student, i.e.

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

Where S_i is the SGPA for i^{th} course, 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.

Example of CGPA:

Semester I	Course	Credit	Letter Grade	Grade Point	Credit Point (Credit x Grade)
	Major 1	4	A	8	4 X 8=32
	Major 2	4	B	7	4 X 7= 28
	Minor	4	B+	6	4 X 6=24
	MDC	4	O	10	4 X 10=40
	SEC	2	C	5	2 X 5=10
	AEC	2	B	6	2 X 6=12
	VAC	2	A+	9	2 X 9=18
				Total	164
				SGPA	164/22=7.454

ii. The Cumulative Grade Point Average (CGPA) is also calculated in the same manner taking into account all the courses 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.

Example for Computation of CGPA

Semester	1	2	3	4	5	6
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Credit:	22	22	22	22	22	22
SGPA:	6.82	7.8	5.6	6.0	6.3	8

$$\text{CGPA} = (22 \times 6.82 + 22 \times 7.8 + 22 \times 5.6 + 22 \times 6.0 + 22 \times 6.3 + 22 \times 8.0) / 132 = 6.75$$

The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts (Grade Sheet).

The transcript may issue for each semester based on SGPA and CGPA and consolidated transcript indicating the performance in each semester.

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The percentage calculation will be on the basis as below :-

Total Marks Obtained in all the semesters x 100 / Grand Total of Maximum Marks of all the semesters.

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If candidates who have failed in all the courses/papers of the semester are eligible to enter in next semester till the last semester. The result of the last semester shall not be declared (kept withheld) unless and until the candidate clears all the courses/papers of a program.

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The subject selected by the candidates in minor in the first semester is compulsory for him/her to select till semester 6.

Abbreviation:

AEC (Ability Enhancement Course)

IKS (Indian Knowledge System)

NCrF (National Credit Framework)

NSS (National Service Scheme)

NCC (National Cadet Corps)

NSQF (National Skills Qualification Framework)

OJT (On-the-Job Training)

SEC (Skills Enhancement Course)

RP (Research Project)

VAC (Value Added Course)

ODL (Open and Distance Learning)

Notes:

1. Students are not allowed to take the same courses studied in the 12th class under the interdisciplinary category.
2. Minor stream courses can be from the 3rd (300) or above level and 50% of the total credits from minors must be secured in the relevant subject/discipline and another 50% of the total credits from a minor can be earned from any discipline as per students' choice.
3. Students who secure 75% marks and above in the first six semesters and wish to undertake research at the undergraduate level can choose a research stream in the fourth year.
4. A four-year UG Honours degree in the major discipline will be awarded to those who complete a four-year degree programme with 176 credits and have satisfied the credit requirements.
5. Honours students not undertaking research will do 4 courses for 12 credits in lieu of a OJT.
6. In Semester VIII, Research Dissertation is compulsory for Bachelor's Degree honours with research students only.
7. Students choosing a 4-Year Bachelor's degree (Honours with Research) are required to take up research dissertation under the guidance of a faculty member. The students are expected to complete the Research Dissertations in the seventh and eighth semester. The research outcomes of their research work may be published in peer-reviewed journals or may be presented in conferences /seminars or may be patented.

Academic Bank of Credits (ABC)

“Academic Bank of Credits(ABC)” means an academic service mechanism as a digital/ virtual/ online entity established by University Grants Commission to facilitate students to become its academic accounts holder, thereby paving the way for seamless student mobility between or within degree granting HEIs through a formal systems of credit recognition, credit accumulation, credit transfer and credit redemption to promote distributed and flexible teaching learning. Academic Bank of Credits (ABC) has been established on the lines of the National Academic Depository (NAD), where the student's academic data are held, and academic awards are

stored (i.e., storehouse of academic awards). The ABC enables students to register or commence credit transfer. The final outcomes of credit redemption, issuance of certificates as well as the compilation of award records are administered by academic institutions via the NAD Platform. Hence being the owner of academic awards, Academic Institutions must mandatorily register themselves under ABC via NAD.

1 Responsibility, Monitoring, and Support of HEI

1. It shall be the responsibility of registered HEIs to constitute an ABC committee under the supervision of Vice Chancellor to monitor the development and operation at HEI level.
2. Registered HEI shall provide training support to faculty, staff and other members for proper execution and functioning of ABC.
3. The quality assurance must be monitored under the supervision and guidance of Board of examination & evaluation.
4. The HEI shall declare and upload annual reports regarding progress and activities under ABC.
5. The grievance redressal committee constituted by the examination board, shall be responsible to address the grievance and appeal related to ABC.

2 Credit Bank for Students

ABC enables students mobility across HEIs to help in seamless integration of skills and experiences into a credit based system. Students can accumulate credits from prior learning experiences. Students must register on the ABC portal to ensure the availability of credits in their ABC account. ABC ID must be submitted to the academic institutions to transfer the credits to their respective ABC account.

In case of Bachelor's degree of for four years of duration, the possible Multiple Entry & Multiple Exit (ME & ME) options are as below:

1. UG Certificate after completing one year in a discipline or field including vocational or professional areas after securing 44 credits provided, they secure 4 additional credits in work based vocational skill course or internship/Apprenticeship offered (Exit courses) during summer vacation. A student can also accumulate fixed proportion (40%) of credits from approved ODL courses as per UGC norms.
2. UG Diploma after completing two years in a discipline or field including vocational or professional areas after securing 88 credits provided, they secure 4 additional credits in work based vocational skill course or

internship/Apprenticeship offered (Exit courses) during summer vacation. This credit enhances their skills and gives them job skills.

3. Bachelor's degree after three years'' programme in the relevant discipline after securing 132 credits in the relevant discipline.

4. Exit options shall be provided with UG Certificate, UG Diploma, Bachelor's degree to the learner at the end of second, fourth and sixth semester respectively. In the fourth year, learners will receive a Bachelor's degree (Honours/Honours with Research) after securing 176 credits on successful completion of all eight semesters of the UG programme either at a stretch or with exits or re-entry options.

5. Four Years UG Degree (Honours with Research): students who secure aggregate 75% or above marks in the first six semesters shall have the option to choose a research stream in fourth year as per other prescribed norms. Students need to conduct research project under guidance of concerned HEIs with weightage of 12 credits. After the fourth year degree, student shall have option to pursue one year's PG programme.

6. Re-entry or lateral entry: Learner who are opting for exits at any level, shall re-enter the programmes where they had left off. They can re-enter either in same or in different HEIs within three years of exits and complete the degree programme within the stipulated maximum period of seven years from the date of admission to first year UG programme.

