



line of the mission of the University, this programme will provide ample of opportunities to those rural and backward learners who are deprived of Science education and cannot find a place in regular education system. Apart from that it is also open to those who wish to continue their learning irrespective of their rural background and economically poor families.

**3. Nature of Prospective Target Group of Learners:**The prospective learners can be 10+2 learners of science background.

**4. Appropriateness of programme to be conducted in Open and Distance Learning mode to acquire specific skills and competence:** Bachelor of Science is one of the suitable course/programme to be offered through Open and Distance Learning mode. The theory and practical knowledge can be thoroughly captured by the learners to acquire the capability which will make them trained for self-employment as per the market demand.

## **5. Curriculum Framework:**

### **5.1 Main Features of the New Curriculum Framework**

At PanditSundarlal Sharma (Open) University Chhattisgarh, Bilaspur, the introduction of our new curriculum framework is guided by the principles and innovations outlined in the National Education Policy (NEP) 2020. The framework is specifically designed to provide flexibility, interdisciplinarity, and a learner-centered approach to learning. Here are the key features of our new curriculum framework:

- i. Inter-Disciplinary Flexibility:** Our framework allows learners the flexibility to transition between different disciplines. This flexibility supports the exploration of diverse academic interests and the development of a well-rounded knowledge base.
- ii. Choice in Course Selection:**Learners have the opportunity to select courses across all disciplines according to their interests and career goals. This choice empowers learners to shape their educational journeys in ways that best suit their personal and professional aspirations.
- iii. Multiple Entry and Exit Options:** The framework accommodates multiple entry and exit points within the undergraduate programs, providing a range of qualifications based on the number of credits accumulated. Learners can earn a UG certificate, diploma, or degree, which provides flexibility in their educational commitments and career planning.

- iv. **Institutional Mobility:** Learners are given the flexibility to move between institutions, enhancing their exposure to multidisciplinary and interdisciplinary learning environments. This mobility is crucial for learners seeking diverse educational experiences.
- v. **Modal Flexibility:** The curriculum offers various modes of learning, including offline, online, open distance learning (ODL), and hybrid formats. This flexibility ensures that education is accessible to all learners, regardless of their geographical location or personal circumstances.
- vi. **Regulatory Support:** To support these features, regulations such as the Academic Bank of Credits (ABC) and guidelines for Multiple Entry and Exit have been established. These regulations facilitate the seamless implementation of our curriculum framework, ensuring that credits are accumulated and transferred efficiently across different educational institutions.

## **5.2 Definitions, Eligibility, and Duration of the Programme**

### **5.2.1 Semester/Credits**

- **Semester Duration:** Each semester at PanditSundarlal Sharma (Open) University consists of 90 working days, and an academic year is divided into two such semesters.
- **Internship:** A Four-week term during the vacation allows for internships/ apprenticeships/ vocational training/ Community engagement & services, particularly beneficial for learners of sixth semester.

### **5.2.2 Major and Minor Disciplines**

- **Major Discipline:** The major is the primary field of study, and the degree is awarded in this discipline. Learners must secure approximately 50% credit or more from core courses out of the total credits.
- **Minor Discipline:** A minor provides a secondary focus, broadening the learner's academic scope. For example, a learner majoring in Political Science could earn a minor in Economics by securing a minimum of 12 credits in this discipline, culminating in a B.A. in Political Science with a minor in Economics.

### 5.2.3 Awarding UG Certificate, UG Diploma, and Degrees

- **UG Certificate:** Students who opt to exit after completion of the first year and have secured 40 credits will be awarded a UG certificate if, in addition, they complete one vocational course of 4 credits during the summer vacation of the first year. 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.
- **UG Diploma:** Students who opt to exit after completion of the second year and have secured 80 credits will be awarded the UG diploma if, in addition, they complete one vocational course of 4 credits during the summer vacation of the second year. 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.
- **3-Year UG Degree:** Students who wish to undergo a 3-year UG programme will be awarded UG Degree in the Major discipline after successful completion of three years, securing minimum 120 credits.
- **4-Year UG Degree (Honours):** four-year UG Honours degree in the major discipline will be awarded to those who complete a four-year degree programme with minimum 160 credits.

### 5.3 Interdisciplinary and Multidisciplinary Programmes

#### Interdisciplinary UG Programs

Interdisciplinary programs involve a blend of courses from related fields to ensure comprehensive expertise upon graduation. The credits for core courses shall be distributed among the constituent disciplines/subjects so as to get core competence in the interdisciplinary programme. For example, a degree in Commerce requires courses in Accountancy group, Economics group, and Business management group. The total credits to core courses shall be distributed so that the student gets full competence in Commerce upon completion of the programme. The degree for such students will be awarded as B.Com. for a 3-year UG programme or B.Com. (Honours) for a 4-year UG programme.

## **Multidisciplinary UG Programs**

These programs allow learners to engage with multiple disciplines, providing a broad educational foundation. In the case of students pursuing a multidisciplinary programme of study, the credits to core courses will be distributed among the broad disciplines such as Life sciences, Sciences, Commerce, Management, Social Sciences, Humanities, etc., For example, a student who opts for a UG program in Life sciences will have the total credits to core courses distributed across Botany, Zoology and allied disciplines. The degree will be awarded as B.Sc. in Life Sciences for a 3-year programme and B.Sc. (Honours) in Life Sciences for a 4-year programme.

The statutory bodies of the University such as the Board of Studies and Academic Council will decide on the list of courses under major category and credit distribution for interdisciplinary and multidisciplinary programmes.

### **5.4 Structure of the Undergraduate Programme**

The structure of the undergraduate program at PanditSundarlal Sharma (Open) University Chhattisgarh, detailing the minimum credit requirements for both the 3-year UG and the 4-year UG (Honours) programmes:

PANDIT SUNDARLAL SHARMA (OPEN) UNIVERSITY CHHATTISGARH BILASPUR, PROPOSED STRUCTURE FOR SEMESTER WISE DISTRIBUTION OF CREDITS OF UNDER GRADUATE PROGRAM UNDER NEP 2020								
Semester	Discipline Specific Courses (DSCs) Each 4 credits	Discipline Specific Electives (DSEs) Each 4 credits	Generic Electives (GEs) Each 3 credits	Ability Enhancement Courses (AEC) Each 3 credits	Value Added Courses (VAC) Each 2 credits	Skill Enhancement Courses (SDC) Each 4 credits	Internship/ Apprenticeship/ Vocational Training/ Community Engagement & Services	Grand total (credit)
I	DSC 1 DSC 2	DSE 1	GE 1	AEC 1	VAC 1	X	X	20
II	DSC 3 DSC 4	DSE 2	GE 2	AEC 2	X	SEC 1	X	22
<b>LEVEL 4.5 EXIT 1 UG CERTIFICATE</b>								
III	DSC 5 DSC 6	DSE 3	GE 3	AEC 3	VAC 2	X	X	20
IV	DSC 7 DSC 8	DSE 4	X	X	X	SEC 2	X	20
	DSC 9							
<b>LEVEL 5 EXIT 2 UG DIPLOMA</b>								
V	DSC 10 DSC 11	DSE 5	X	X	X	SEC 3	X	20
	DSC 12							
VI	DSC 13 DSC 14	DSE 6	X	X	VAC 3	X	Internship/Community Engagement & Service (2 C)	20
	DSC 15							
	60 Credits	24 Credits	9 Credits	9 Credits	6 Credits	12 credits	2 Credits	122 Credits
<b>LEVEL 5.5 EXIT 3 UG DEGREE</b>								
VII	DSC(H) 16	DSE 7	X	X	X	X	X	20
	DSC(H)17							
	DSC(H) 18 DSC(H)19							
VIII	DSC(H) 20	DSE 8	X	X	X	X	X	20
	DSC(H)21							
	DSC(H) 22 DSC(H)23							
	92 Credits	32 Credits	9 Credits	9 Credits	6 Credits	12 credits	2 Credits	162 Credits
<b>LEVEL 6 EXIT 4 UG DEGREE HONOURS</b>								

#### 5.4.1 Provisions for opting various courses

- i. From semester I to semester VI, learner have to study 15 DSC courses, 06 DSE courses, 03 GE courses, 03 AEC courses, 03 VAC courses, 03 SEC courses and one Internship/Apprenticeship/ Vocational Training/ Community Engagement & Services.
- ii. In IV, V, VI semester, Learners will be required to opt for one specific subject as DSC, out of those opted previously by him in semester I, II and III as DSC/DSE. This selected subject will be for courses DSC-9, DSC-12 and DSC-15 respectively. Learners having successfully accomplished VI semester, will have three subjects of study as DSC/DSE. Out of these three subjects, two subjects will

account for six courses each and the third subject will account for nine courses. Learners will be allowed to continue for honours in VII and VIII Semesters with the subject where he/she has studied and accomplished nine courses.

- iii. The list of courses which is to be offered in a specific discipline for **Discipline Specific Courses (DSC)** will be given by respective department concern of the university.
- iv. The list of courses which is to be offered in **Discipline Specific Elective (DSE)** will be offered by various School of Studies/Faculties. This list will be offered subject wise and on the basis of various semesters. The learners can opt from the basket of offered subjects, provided that he/she has to continue with the same subject form I to VI semester, thereby studying six courses of specific opted subject.
- v. The list of courses which is to be offered in **Generic Elective (GE) Course** shall be given by various School of Studies/Faculties. Learners can opt from the basket of offered courses provided that he/she shall not continue to opt for those courses which are offered by School/Faculty as **Discipline Specific Course (DSC)** which the learner has opted earlier.
- vi. The list of courses which is to be offered as **Ability Enhancement Course (AEC)** shall be made available to the Learners. The Learners can opt for one AEC in each semester from the offered courses.
- vii. The list of courses which is to be offered as **Value Added Course (VAC)** shall be made available to the Learners. The Learners can opt for one VAC in each semester from the offered courses.
- viii. The list of courses which is to be offered as **Skill Enhancement Courses (SEC)** shall be made available to the Learners. The Learners can opt for one SEC in each semester from the offered courses.
- ix. A Four-week term during the vacation allows for internships/ apprenticeships/ vocational training/ Community engagement & services, particularly beneficial for learners of sixth semester.
- x. The learner, who have obtained overall 75% and above marks in I to VI semester, shall be eligible to continue for fourth year, i.e. VII and VIII semester for honours programme.
- xi. In VII and VIII semester, learner have to study 04 DSC courses and one DSE course in each semester, i.e. total 08 DSC courses and 02 DSE courses.

### 5.4.2 List of Discipline Specific Courses (DSC)

A learner can opt DSC Courses from the list of offered courses as per the provisions mentioned by the school of Science and School of Life Science. A learner should opt any one Group out of Groups given below, i.e. Group X and Group Y.

#### 5.4.2.1 Group X (School of Science)

Semester	Discipline Specific Course (DSC)	
	Mathematics	Physics
I	DSC-1: Calculus	DSC-2: Mechanical Oscillation
II	DSC-3: Algebra and Trigonometry	DSC-4: Electromagnet and Electromagnetic Theory
III	DSC-5: Vector analysis and geometry	DSC-6: Kinetic Theory of Gases
IV	DSC-7: Higher calculus	DSC-8: Wave and Sounds
	DSC-9: Group A/B/C/D	-
V	DSC-10: Differential equation	DSC-11: Optics
	DSC-12: Group A/B/C/D	-
VI	DSC-13: Mechanics	DSC-14: Emergence of Quantum Mechanics
	DSC-15: Group A/B/C/D	-
VII	DSC(H)-16 : Group A1/B1/C1/D1	
	DSC(H)-17 : Group A1/B1/C1/D1	
	DSC(H)-18 : Group A1/B1/C1/D1	
	DSC(H)-19 : Group A1/B1/C1/D1	
VIII	DSC(H)-20 : Group A1/B1/C1/D1	
	DSC(H)-21: Group A1/B1/C1/D1	
	DSC(H)-22: Group A1/B1/C1/D1	
	DSC(H)-23: Group A1/B1/C1/D1	

For DSC 9, DSC 12, and DSC15, Learners can choose a course from a particular core discipline group of A, B, C, & D.



<b>Discipline Group</b>	<b>Group A: Mathematics</b>	<b>Group B: Physics</b>	<b>Group C: Chemistry</b>	<b>Group D: Computer Science</b>
<b>DSC 9</b>	abstract algebra	Atomic and Nuclear Physics	Physical Chemistry-III	Desktop Publishing
<b>DSC12</b>	Mechanics Part-02	Solid State Physics	Inorganic Chemistry-III	Programming in C
<b>DSC 15</b>	Simple statistical principles and their uses	Electronics	Organic Chemistry-III	Visual Basic

For DSC(H)-16 to DSC(H)-23 of honours programme, Learners can choose a course from a particular core discipline group of A1, B1, C1, & D1.

<b>Discipline Group</b>	<b>Group A1: Mathematics</b>	<b>Group A1: Mathematics</b>	<b>Group B1: Physics</b>	<b>Group C1: Chemistry</b>	<b>Group D1: Computer Science</b>
DSC(H)-16	Topology	Mathematics(H) Course 1	Mathematical Physics	Solid State Chemistry	Computer Network
DSC(H)-17	Real Analysis	Mathematics(H) Course 2	Classical Mechanics	Polymer Chemistry	Advance Operating System
DSC(H)-18	Partial differential Equation	Mathematics(H) Course 3	Analog system & Application	Industrial Chemistry	Software Engineering
DSC(H)-19	Discrete Mathematics	Mathematics(H) Course 4	Element of Modern Physics	Green Chemistry	DBMS
DSC(H)-20	Operational Research	Mathematics(H) Course 5	Digital System & Application	Pericyclic Reaction	Artificial Intelligence
DSC(H)-21	Complex Analysis	Mathematics(H) Course 6	Electrodynamics	Photochemistry	Data Mining
DSC(H)-22	Mathematical Statistics	Mathematics(H) Course 7	Medical Physics	Group Theory	MIS
DSC(H)-23	Object Oriented Programming with C++	Mathematics(H) Course 8	Atmospheric Physics	Novel Inorganic Solids	Principle of Communication System

### 5.4.2.2 Group Y (School of Life Science)

Semester	Discipline Specific Course (DSC)	
	Zoology	Botany
I	DSC-1: Cell Biology and Invertebrates	DSC-2: General Diversity of Microbes and Cryptogams
II	DSC-3: Vertebrates and Embryology	DSC-4: Cell Biology and Genetics
III	DSC-5: Anatomy and Physiology	DSC-6: Diversity of Seed Plants and Their Systematics
IV	DSC-7: Vertebrate Endocrinology, Reproductive Biology, Evolution, Behaviour and Applied Zoology	DSC-8: Structure Development and Reproduction in Flowering Plants
	DSC-9: Group A/B/C/D	-
V	DSC-10: Genetics Evolution and Animal Behaviors	DSC-11: Ethnobotany
	DSC-12: Group A/B/C/D	-
VI	DSC-13: Molecular Biology Biotechnology and Medical Zoology	DSC-14: Cell and Molecular Biology
	DSC-15: Group A/B/C/D	-
VII	DSC(H)-16 : Group A1/B1/C1/D1	
	DSC(H)-17 : Group A1/B1/C1/D1	
	DSC(H)-18 : Group A1/B1/C1/D1	
	DSC(H)-19 : Group A1/B1/C1/D1	
VIII	DSC(H)-20 : Group A1/B1/C1/D1	
	DSC(H)-21: Group A1/B1/C1/D1	
	DSC(H)-22: Group A1/B1/C1/D1	
	DSC(H)-23: Group A1/B1/C1/D1	

For DSC 9, DSC 12, and DSC15, Learners can choose a course from a particular core discipline group of A, B, C, & D.

<b>Discipline Group</b>	<b>Group A: Zoology</b>	<b>Group B: Botany</b>	<b>Group C: Chemistry</b>	<b>Group D: Computer Science</b>
<b>DSC 9</b>	Ecology, Environmental-Biology, Toxicology, Microbiology and Medical Zoology	Plant Physiology, Biochemistry and Biotechnology	Physical Chemistry-III	Desktop Publishing
<b>DSC12</b>	Genetic, Cell Physiology, Biochemistry, Biotechnology and Biotechnique	Ecology and Utilization of Plants	Inorganic Chemistry-III	Programming in C
<b>DSC 15</b>	Fish and Aquaculture	Plant Ecology	Organic Chemistry-III	Visual Basic

For DSC(H)-16 to DSC(H)-23 of honours programme, Learners can choose a course from a particular core discipline group of A1, B1, C1, & D1.

<b>Discipline Group</b>	<b>Group A1: Zoology</b>	<b>Group B1: Botany</b>	<b>Group C1: Chemistry</b>	<b>Group D1: Computer Science</b>
<b>DSC(H)-16</b>	Diversity and biology of Non -chordates	Mycology	Solid State Chemistry	Computer Network
<b>DSC(H)-17</b>	Animal Physiology	Plant Pathology	Polymer Chemistry	Advance Operating System
<b>DSC(H)-18</b>	Ecology and Environment	Elements of Genetics	Industrial Chemistry	Software Engineering

<b>DSC(H)-19</b>	General physiology and comparative Endocrinology of vertebrates	Tissue Culture	Green Chemistry	DBMS
<b>DSC(H)-20</b>	Genetics and Genetic engineering	Instrumentation	Pericyclic Reaction	Artificial Intelligence
<b>DSC(H)-21</b>	Molecular cell biology	Microbiology	Photochemistry	Data Mining
<b>DSC(H)-22</b>	Bio-Technology	Cytology and Molecular biology	Group Theory	MIS
<b>DSC(H)-23</b>	Tools and Techniques for biology	Botany of Flowering plants	Novel Inorganic Solids	Principle of Communication System

#### 5.4.3 List of Discipline Specific Electives (DSE)

A learner can choose a course from multiple disciplines under Discipline Specific Elective. From School of Science and School of Life Science, following courses are available for the DSE.

Semester		Discipline Specific Elective (DSE)	
		Chemistry	Computer Science
<b>I</b>	<b>DSE 1</b>	Physical Chemistry-I	Fundamentals of Computer and Information Technology.
<b>II</b>	<b>DSE 2</b>	Inorganic Chemistry-I	Internet & Web Development
<b>III</b>	<b>DSE 3</b>	Organic Chemistry-I	PC Package
<b>IV</b>	<b>DSE 4</b>	Physical Chemistry-II	Introduction to Operating System
<b>V</b>	<b>DSE 5</b>	Inorganic Chemistry-II	Object oriented programming in C++
<b>VI</b>	<b>DSE 6</b>	Organic Chemistry-II	System Analysis & Design

<b>VII</b>	<b>DSE 7</b>	Biochemistry	Cyber Security
<b>VIII</b>	<b>DSE 8</b>	Molecular rearrangement Reactions	E-Commerce
		<b>Mathematics</b>	<b>Physics</b>
<b>VII</b>	<b>DSE 7</b>	Advance Discrete Mathematics/ Dissertation	Astro Physics
<b>VIII</b>	<b>DSE 8</b>	Graph Theory	Biophysics
		<b>Zoology</b>	<b>Botany</b>
<b>VII</b>	<b>DSE 7</b>	Genetics and Genetic engineering	Instrumentation
<b>VIII</b>	<b>DSE 8</b>	Immunology	Conservational biology

#### **5.4.4 Generic Elective**

A learner has to study a course from the list of Generic Electives in each semester of semester I, II, & III. A learner can choose a course from multiple disciplines provided by various Schools/ Board of studies.

#### **5.4.5 Ability Enhancement Course**

A learner has to study a course from the list of Ability Enhancement Courses in each semester of semester I, II, & III. A learner can choose a course from various disciplines provided by various Schools/ Board of studies.

#### **5.4.6 Value Added Course**

A learner has to study three Value Added Courses during semester I to VI. A learner can choose a course from various disciplines provided by various Schools/ Board of studies.

#### **5.4.7 List of Skill Enhancement Course**

A learner has to study three Skill Enhancement Courses during semester I to VI. A learner can choose a course from various disciplines provided by various Schools/ Board of studies.

**5.5 Learning Method:** The learning method developed by University will comprise of independent form of delivery and will constitute the following components:

- a) Self-Instructional text books (Self Learning Materials).
- b) Counselling and contact sessions at the study centre by the subject experts.
- c) Preparing the learners Assignment.
- d) Video & Audio Lectures.

**5.6 Means of Delivery:** The learners are given the syllabus of the courses and also the Self learning material. It helps the learners to study a specific topic. If the learner has any difficulty, he or she can make a note of it. They can discuss these noted difficulties with the counsellor during the contact session at the study centre.

**5.7 Requirement of Faculty and Support Staff:** University shall appoint faculty and staff in specific Department/ Discipline as per the provision laid down by UGC ODL & Online Regulations 2020.

## **6. Procedure for admissions, curriculum transaction and evaluation:**

- i. **Procedure of Admission:** The admission for undergraduate programme will be on semester basis (or as decided by the University from time to time). All the admissions for the Programme will be done through online mode. Applications will be invited by the University with in stipulated time period where Learners have to apply for the same with all their testimonials and required fees. The minimum eligibility for admission into this programme for the candidates is having passed 10+2 examination of Chhattisgarh Board of Secondary Education, Chhattisgarh or any other equivalent examination of a Board or University recognized by PanditSundarlal Sharma (open) University Chhattisgarh.
  - ii. **Curriculum Transaction:** For successful completion of the proposed programme, a candidate has to obtain minimum passing mark for each of the subjects as specified in the University ordinance.
  - iii. **Evaluation Pattern:** The pattern of evaluation for each course from semester I to semester VIII of Under Graduate programme will have following three components:
    - (a) Continuous Assessment through TMA
    - (b) Practical Viva-Voce/ Internship
    - (c) Term End Examination (TEE)
- a) **Continuous Assessment through Tutor Mark Assignment:** For each course in every year the Learners performance will be continuously evaluated. Continuous

assessment schedule and evaluation will be done by the Study Centre which will be monitored by the department concern. The Learners have to submit Tutor Mark Assignment (TMA) carrying 30 marks before the Term end examination (TEE) which will be the base of evaluation.

- b) **Practical Viva Voce/ Internship:** Evaluation of this component will be based on Practical Viva-Voce/ Internship done by the Learners. Viva-voce will be conducted in the presence of an external examiner.
- c) **Term End Examination (TEE):** Term End Examination (TEE) will be conducted at the end of the learning period through an examination as like other universities. Term End examination (TEE) of each course will be of 70 marks and will be on subjective mode. The questions in the examination will comprise of very short type answer, brief answers and long type answers. The structure of the examination is as under:

Section	Total No. Of Questions	Type of Questions	Marks
A	8 (All Compulsory Questions)	Objective Type	1X8=8
B	6 (4 Should be answered)	Very Short Type	2.5X 4=10
C	4 (3 Should be answered)	Short Type	5X3=15
D	4 (2 Should be answered)	Semi Long Type	10X2=20
E	2 (1 Should be answered)	Long Type	17X1=17
TOTAL	24 (18 Should be answered)		70 Marks

- d) **Programme Fee Structure:** The fee structure of the Undergraduate programme is Rs. 3000/- (Rupees Three Thousand) per Semester, with an addition fee of Rs. 300/- (Rupees Three Thousand only) per Practical Course.

**7. Requirement of the laboratory support and Library Resources:** Laboratory as per requirement of the Curriculum will be made available to the learners either at the University Head Quarter or at LSCs. Resources in the form of reference books and Journals will be made available to the Learners in the University Central library, which they can access for gaining knowledge and conceptual clarity.

**8. Cost estimate of the programme and the provisions:** For the design, development delivery and maintenance of the programme the fund will be as per the budget allocated by the University in its Annual Budget session.

**9. Quality assurance mechanism and expected programme outcomes:** The monitoring of the programme will be done on continuous basis by the department concern. Regular updating of the curriculum and syllabus will be checked by the concerned board of studies and regular monitoring will be done by Centre for Internal Quality Assurance (CIQA) of the University. Learners will be asked to provide their feedback on continuous basis to develop suitable action plans for the programme and will be duly incorporated into the teaching and delivery system.