Prospectus
Science Faculty
Academic Year: 2024-25

Gokhale Education Society
ज्ञान प्राप्तीस्तु भक्तीतः
Above Self ...Above Politics
"Quest for Excellence &
Quality Education for All"

National Education Policy 2020 – Its Implementation in
RNC Arts, JDB Commerce & NSC Science College, Nashik Road
(From Academic Year 2024-25)

Introduction:

NEP-2020, or the National Education Policy 2020, is a comprehensive policy introduced by the Government of India to transform the education system in the country. It aims to bring about significant changes in various aspects of education, from school to higher education. If you are a prospective undergraduate student of RNC Arts, JDB Commerce And NSC Science College, an Autonomous College affiliated to the Savitribai Phule Pune University, Pune, you are advised to go through the Government of Maharashtra – GR dated 20th April 2023 for clarity on the various rules and regulations as recommended by the state department of Higher andTechnical Education.

Salient Features of NEP-2020

The National Education Policy 2020 (NEP2020) in India brings several significant changes compared to the prevalent education policy at the time of its introduction. Here are some key differences between the prevalent education policy and NEP2020:

- Multidisciplinary Approach: NEP2020 promotes a multidisciplinary approach to education, encouraging students to choose subjects across different disciplines and bridging the gap between arts, sciences, and humanities.

- Reduction in Content Overload: NEP2020 emphasizes reducing the content overload in the curriculum to focus on core concepts and critical thinking rather than rote memorization.

- Skill Development and Vocational Education: NEP2020 places significant importance on skill development and vocational education, aiming to provide students with practical skills and promote entrepreneurship.

- Assessment Reforms: NEP2020 advocates for a shift in assessment methods, aiming to move away from high-stakes examinations and focus on a more comprehensive and holistic assessment of student understanding and skills.

- Inclusion and Equity: NEP2020 emphasizes inclusion and equity in education, aiming to address gender and social disparities, provide equal opportunities for marginalized communities, and promote inclusive education for students with disabilities.

- Research and Innovation: NEP2020 recognizes the importance of research and innovation in education, encouraging the establishment of research centers and promoting a culture of research among students and teachers.

- Internationalization: NEP2020 recognizes the significance of internationalization in education. It encourages collaborations and exchange programs between Indian and foreign institutions, promoting global exposure and cross-cultural learning.

Implementation:

NEP-2020 is being gradually implemented across educational institutions in India, including Savitribai Phule Pune University. All the proposed changes may take time to fully integrate, but the policy aims to create a more inclusive, flexible, and relevant education system.

Undergraduate Education at RNC Arts, JDB Commerce and NSC Science College, under the aegis of NEP-2020

R.N.C. Arts, J.D.B. Commerce and N.S.C. Science College- Nashik, is established in 1963. Through 61 years of existence, the college has been a major national contributor to capacity building. The list of illustrious alumni is long and the college takes pride in their achievements in the national as well as global social, cultural, industrial and science arenas.

Keeping the tenets and recommendations about the NEP2020 from the UGC, along with adhering to the directives from the Maharashtra State – Department of Higher and Technical Education, the college, with its more than 50 years of experience in the domain of higher education has prepared a comprehensive undergraduate and postgraduate curricular structure. This new structure also adheres to the key values of *Innovation, Integration, and Inclusion.*

The framework of the choice-based credit system:

Major Subject: A single subject course of study pursued by a student as a mandatory requirement of the programme of study. Indian knowledge system (IKS) to be included in the core courses.

Elective Course: An elective course could be a project designed to acquire skills to supplement the major study.

Minor Subject: A second subject of study pursued by a student as an additional requirement of the programme of study.

Open Elective (OE): An elective course chosen generally from an unrelated discipline/subject, to seek multidisciplinary exposure.

Ability Enhancement Course (AEC): Mandatory Courses on content related to Language, and Literature
(i)   Compulsory – English communication
(ii)   Elective – any Indian language other than English.

Vocational Skill Course (VSC): Courses aimed at imparting practical skills, hands-on training, and soft skills to increase the employability of students. Specific or supporting the major subject is to be chosen from a basket/pool offered by the college.

Skill Enhancement Course (SEC): Courses aimed at imparting practical skills, hands-on training, and soft skills to increase students' employability. It could be chosen from a basket/pool offered by the

college or a MOOC on Swayam or NPTEL platforms.

On-Job Training (OJT)/Internship/Field Project (FP)/Community Engagement Programme (CEP) Research Project (RP): Application of knowledge/concepts in solving or analyzing a real-life problem. All these are related to the major subject.

Co-curricular Course (CC): For the holistic development of students through Cultural activities suchas performing art, visual art, NCC, NSS etc.

Value Education Course (VEC): Compulsory courses on

(i) The Constitution of India and

(ii) Environmental Education.

The tables below contain the planned quantum of courses that will be offered under the Arts, Science, and Commerce (grant-in-aid) programs starting from June 2023. The total credits that a student will collect in each semester is 22. This is as per the directives of Maharashtra State. A student is free to exit at the end of each academic year as depicted in the table below.

On successful completion of three years and obtaining 132 credits, a student can opt for an exit with a bachelor's degree in their domain, e.g., BSc. The student must have a minimum CGPA of 7.5, to be eligible to obtain an 'Honours' degree. They would need to complete the fourth year of the said programme and acquire 176 credits for a bachelor's degree with Honours. If a student opts for an Honours degree by Research, the eligibility criteria will be at the discretion of the College.

Savitribai Phule Pune University, Pune

Credit Framework for Under Graduate (UG) (2024-25) (3 Subject) for Faculty of Science and Technology

Level / Difficulty	Sem	Subject-1	Subject-2	Subject-3	GE/OE	SEC	IKS	AEC	VEC	CC	Total
4.5 / 100	I	2 (T) + 2 (P)	2(T)+2(P)	2(T)+2 (P)	2 (T)	2 (T/P)	2 (T) (Generic)	2 (T)	2	--	22
	II	2 (T) + 2 (P)	2(T)+2(P)	2(T)+2 (P)	2 (P)	2 (T/P)	--	2 (T)	2	2	22

Exit option: Award of UG Certificate in Major with 44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor

Continue option: Student will select one subject among the (subject 1, subject 2 and subject 3) as major and another as minor and third subject will be dropped.

Level / Difficulty	Sem	Credits Related to Major				Minor		GE/OE	SEC	IKS	AEC	VEC	CC	Total
		Major Core	Major Elective	VSC	FP / OJT / CEP									
5.0 / 200	III	4 (T) + 2 (P)	--	2 (T/P)	2 (FP)	2(T)+2(P)	--	2 (T)	--	2 (T) (Major Subject Specific)	2 (T)	--	2	22
	IV	4 (T) + 2 (P)	--	2 (T/P)	2 (CEP)	2(T)+2(P)	--	2 (P)	2 (T/P)	--	2 (T)	--	2	22

Exit option: Award of UG Diploma in Major and Minor with 88 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor

Level / Difficulty	Sem	Major Core	Major Elective	VSC	FP / OJT / CEP	Minor		GE/OE	SEC	IKS	AEC	VEC	CC	Total
5.5 / 300	V	8(T) + 4(P)	2 (T) + 2 (P)	2 (T/P)	2 (FP/CEP)	2(T)	--	--	--	--	--	--	--	22
	VI	8(T) + 4(P)	2 (T) + 2 (P)	2 (T/P)	4 (OJT)	--	--	--	--	--	--	--	--	22
Total 3 Years		44	8	8	10	18	8	8	6	4	8	4	6	132

Exit option: Award of UG Degree in Major with 132 credits OR Continue with Major and Minor

Level / Difficulty	Sem	Major Core	Major Elective	VSC	FP / OJT / CEP	Minor		GE/OE	SEC	IKS	AEC	VEC	CC	Total
6.0 / 400	VII	6 (T) + 4 (P)	2 (T) + 2 (T/P)	--	4 (RP)	4(RM)(T)		--	--	--	--	--	--	22
	VIII	6 (T) + 4 (P)	2 (T) + 2 (T/P)	--	8 (RP)	0			0	0	0	0	0	22
Total 4 Years		64	16	8	22	22	8	8	6	4	8	4	6	176

Four Year UG Honours with Research Degree in Major and Minor with 176 credits OR

Level / Difficulty	Sem	Major Core	Major Elective	VSC	FP / OJT / CEP	Minor		GE/OE	SEC	IKS	AEC	VEC	CC	Total
6.0 / 400	VII	10(T) + 4(P)	2 (T) + 2 (T/P)	0	0	4 (RM) (T)			0	0	0	0	0	22
	VIII	10(T) + 4(P)	2 (T) + 2 (T/P)	0	4 (OJT)	0			0	0	0	0	0	22
Total 4 Years		72	16	8	14	22	8	8	6	4	8	4	6	176

Four Year UG Honours Degree in Major and Minor with 176 credits

Notes:

Abbreviation: VSC: Vocational Skill Course, IKS: Indian Knowledge System, FP: Field Project, OJT: On Job Training, CEP: Community Engagement and Service, GE/OE: Generic Elective / Open Elective, SEC: Skill Enhancement Course, AEC: Ability Enhancement Course, VEC: Value Education Course, CC: Cocurricular Courses, T – Theory, P – Practical

1. VSC, FP/OJT/CEP should be related to the Major subject
2. OE is to be chosen compulsorily from faculty other than that of the Major.
3. SEC to be selected from the basket of Skill Courses approved by college.
4. Student has to choose three subjects from the same faculty in First Year and at the start of Second year he has to opt one subject as Major subject and one another subject as Minor subject and the last one subject will be dropped by the student. Therefore, the student after completion of three year will be awarded degree in Major and Minor subject.
5. Student cannot select a subject as major or minor other than the subjects taken in first year
6. Frame each course having even number of credits such as 2 or 4 credit.
7. This UG credit structure is applicable for all the programme across all faculties, except the programmes required approval from apex bodies like AICTE, PCI, BCI, COA, NCTE, etc.

NOTE:

i. On exiting after three years of Undergraduate education, a student can further pursue a Postgraduate degree, requiring the successful completion of four semesters (2 years) of advanced course work along with research projects in their domain of specialization.

ii. After completing the fourth year of Undergraduate education, a student can further pursue a Postgraduate degree, requiring the successful completion of two semesters (1 year) of advanced coursework along with research projects in their domain of specialization.

NOTE: 1) A two Credit IKS (Generic) Course will be offered in the first semester.

2) A two credit course for AEC on Effective English Communication, Hindi/ Marathi Communication in the first two semesters. The third semester will have advanced communication courses in the chosen Indian language. The fourth semester will offer faculty or department specific communication skills courses, e.g. Scientific, Business, Digital Communication etc.

3) A two credit VEC in the first and second semester on Environmental Education and The Constitution of India.
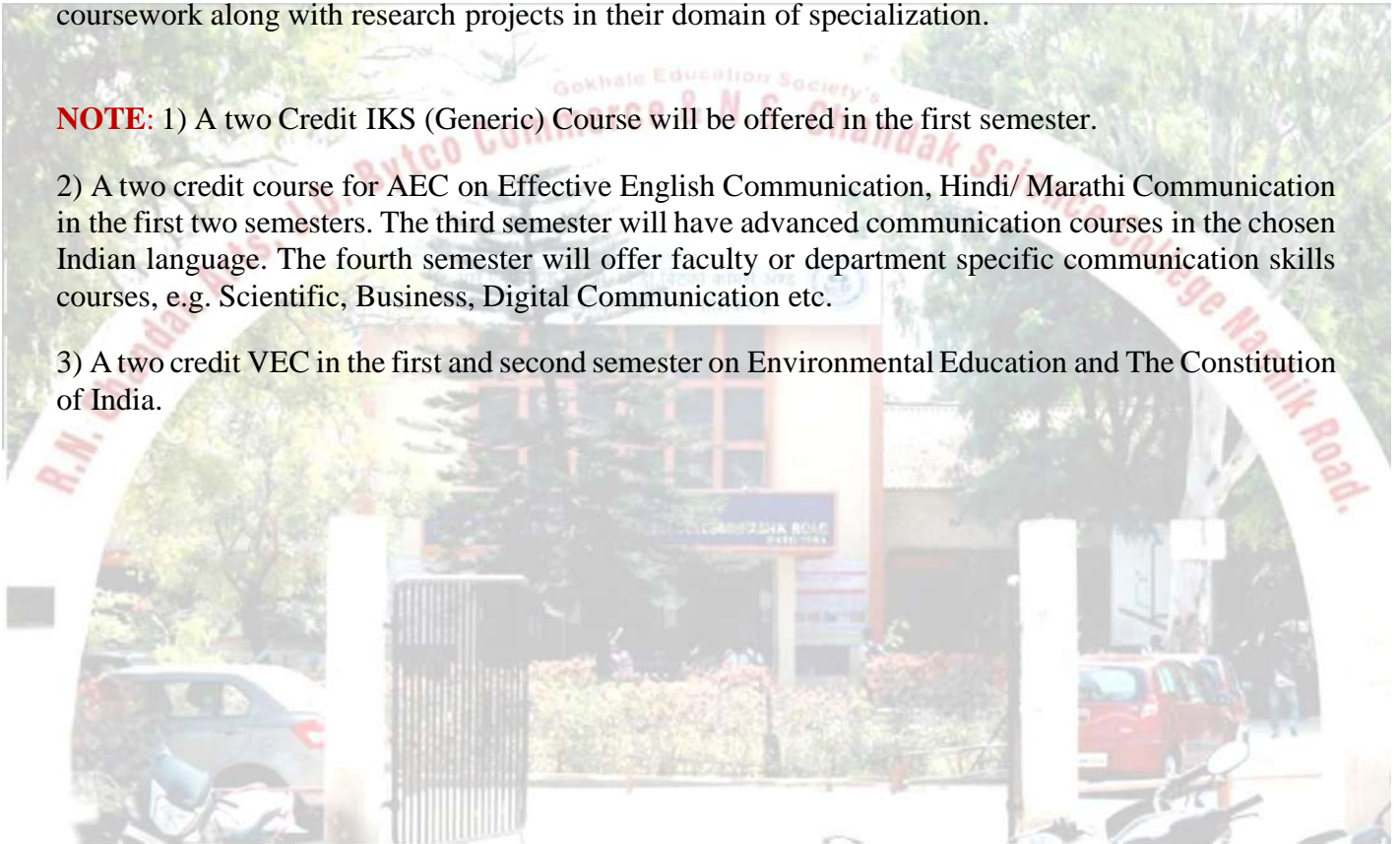
BACHELOR OF SCIENCE PROGRAMME

List of Chemistry Courses

A. List of Discipline Specific Core (DSC) Courses (Major Core)

 I. Major Core (Semester-I) (4 Credits) (T + P)

  1. CHE-101-T: Fundamentals of Chemistry-I
  2. CHE-102-P: Chemistry Practical-I

 II. Major Core (Semester-II) (4 Credits) (T + P)

  1. CHE-151-T: Fundamentals of Chemistry-II
  2. CHE-152-P: Chemistry Practical -II

B. List of Generic Elective (GE)/Open Elective (OE) Courses

 I. Open Elective (Semester-I) (2 Credits) (T)

  1. OE-101-CHE (A)-T: Kitchen and Daily Life Chemistry

   OR

  OE-101-CHE (B)-T: Chemistry for Competitive Examination - I

 II. Open Elective (Semester-II) (2 Credits) (P)

  1. OE-151-CHE (A)-T: Chemistry for Competitive Examination – II
   OR

  OE-151-CHE (B)-P: General Chemistry Practical-I

C. List of Skill Enhancement Courses (SEC)

 I. Skill Enhancement Courses (Semester-I) (2 Credits) (T)

  1. SEC-101-CHE (A)-T: Chemistry Laboratory Skills – I

   OR

  2. SEC-101-CHE (B)-P: Chemistry Laboratory Skills – I (Practical)

 II.   Skill Enhancement Courses (Semester-II) (2 Credits) (T/P)

  1. SEC-151-CHE (A)-T: Chemistry Laboratory Skills – II

   OR

  2. SEC-151 CHE (B)-P: Basics in Computer for Chemistry (Practical)

List of Mathematics Courses

Year/ Level	Sem.	Subject- I	Subject- II	Subject- III	V-3	V-5	V-4	V-5	V-5	V-6	V-6	Total
					OE/GE	IKS	SEC	AEC	VEC	CC	RP	
1 Yr./4.5	I	2(T)+2(T/P)=4 **MTS-101-T :**Algebra and Calculus-I (2T) **MTS-102-P:** Practical Based on MTS-101(2P) --	2(T)+2(T/P)=4	2(T)+2(T/P) =4	2(T) OE 101MTS: (other Faculty)	2 IKS 101 MTS: Generic IKS	2 SEC- 101 MTS Python-I (P)	2 AEC-101 ENG: English Communication	2 VEC101 ENV: Environmental Studies	_	_	22
	II	2(T)+2(T/P)=4 **MTS-151-T :**Algebra and Calculus-II (2T)**MTS-152-P :**Practical Based on MTS-151(2P)	2(T)+2(T/P)=4	2(T)+2(T/P)= 4	2(P) OE 151 MTS: (other Faculty)	-	2 SEC-151MTS Python-II (P)	2 AEC-151 ENG: English Communication	2 VEC151 ENV: Environmental Studies	2 CC151 (PE/NSS /NCC)	_	22

List of Physics Courses

Note: Every theory/practical subject has 2 credits.

9) List of Discipline Specific Core (DSC) Courses (Major Core)

Major Core (Semester-I) (4 Credits) (2T+2P)

Semester I
    PHY-101-T : Fundamental of Physics-I
    PHY 102-P : General Physics Lab-I

Major Core (Semester-II) (4 Credits) (2T+2P)

Semester II
    PHY-151-T : Fundamental of Physics-II
    PHY-152-P : General Physics Lab-II

List of Geography Courses

Level	Sem	DSE Subject-1	DSE Subject-2	DSE Subject-3	GE/OE	SEC	IKS	AEC	VEC	CC	Total
4.5/100	I	GEO(S) 101 Fundamentals of Physical Geography [2 T] GEO(S) 102 Practicals in Physical Geography [2 P]	2(T) + 2(P)	2(T) + 2(P)	(Select any one of the following) GEO(S) 101 OE Geography of Rural Development [2 T] *OR* GEO(S) 102 OE Agriculture Geography [2 T]	(Select any one of the following) GEO(S) 101 SEC Introduction to Cartography [2 T] *OR* GEO(S) 102 SEC Introduction to Digital Mapping [2 T]	2 (T) Generic	2 T	2	-	22
	II	GEO(S) 151 Fundamentals of Human Geography [2 T] GEO(S) 152 Practicals in Human Geography [2 P]	2(T) + 2(P)	2(T) + 2(P)	(Select any one of the following) GEO(S) 151 OE Practicals in Rural Development [2 P] *OR* GEO(S) 152 OE Practicals in Agriculture Geography [2 P]	(Select any one of the following) GEO(S) 151 SEC Practicals in Cartographic Techniques [2 P] *OR* GEO(S) 152 SEC Practicals in Digital Mapping [2 P]	-	2 T	2	2	22

Exit option: Award of UG Certificate in Major with 44 credits and an additional 4 credits Course NSQF courses/Internship OR Continue with Major and Minor

Continue Option: Students will select one subject among the (subject-1, subject-2 and subject-3) as a major and another as minor and third subject will be dropped.

List of Botany Courses

CREDIT FRAMEWORK FOR F.Y.B.Sc. BOTANY, SEMESTER – I and II (Level 4.5 / 100)

SEMESTER I

COURSE DETAILS	COURSE CODE	COURSE TITLE	CREDITS
Subject 1 – (1T + 1P) x 2 C = 4 C	BOT-101-T	Applied Aspects of Plant Sciences	2 C
	BOT-102-P	Practical Based on BOT-101-T	2 C
Subject 2 – (1T + 1P) x 2 C = 4 C	Subject 2 -T	------	2 C
	Subject 2 -P	------	2 C
Subject 3 – (1T + 1P) x 2 C = 4 C	Subject 3 -T	------	2 C
	Subject 3 -P	------	2 C
Generic Elective (GE) / Open Elective (OE) - (1T = 2 C) (Any one from basket)	OE-101-BOT-T	Agro-tourism	2 C
	OE-102-BOT-T	Plants and Human Welfare	
	OE-103-BOT-T	Agriculture for Competitive Exams	
Skill Enhancement Courses (SEC) – (1T / 1P = 2 C) (Any one from basket)	SEC-101-BOT-P	Flower Design Techniques	2 C
	SEC-102-BOT-P	Post-Harvest Technology	
	SEC-103-BOT-P	Algal Technology	
Indian Knowledge Systems (IKS) – (1T = 2 C)	IKS-101-T	Generic	2 C
Ability Enhancement Course (AEC) – (1T = 2 C)	AEC-101-ENG-T	English	2 C
Value Education Courses (VEC) – (1T = 2 C)	VEC-101-ENV-T	Environmental Awareness	2 C
Total Credits (V1+V2+V3+V4+V5+V6)			22 C

SEMESTER – II

	BOT-151-T	Basics of Plant Sciences	2 C
Subject 1 – (1T + 1P) x 2 C = 4 C	BOT-152-P	Practical Based on BOT-151-T	2 C
Subject 2 – (1T + 1P) x 2 C = 4 C	Subject 2 -T	------	2 C
	Subject 2 -P	------	2 C
Subject 3 – (1T + 1P) x 2 C = 4 C	Subject 3 -T	------	2 C
	Subject 3 -P	------	2 C
Generic Elective (GE) / Open Elective (OE) – (1P = 2 C) (Any one from basket)	OE-151-BOT-P	Fruit Processing and Flower Arrangement	2 C
	OE-152-BOT-P	Mushroom technology	
	OE-153-BOT-P	Vertical and Terrace Gardening	
Skill Enhancement Courses (SEC) – (1T / 1P = 2C) (Any one from basket)	SEC-151-BOT-P	Plant Preservation Techniques	2 C
	SEC-152-BOT-P	Millets for Sustainable Agriculture Development	
	SEC-153-BOT-P	Plant Propagation Techniques	
Ability Enhancement Courses (AEC) – (1T = 2 C)	AEC-151-ENG-T	English	2 C
Value Education Courses (VEC) – (1T = 2 C)	VEC-151-ENV-T	Environmental Awareness	2 C
Co-curricular Courses (CC) – (1T = 2 C)	CC-151-T	Any one from basket	2 C
Total Credits (V1+V2+V3+V4+V5+V6)			22 C
Total Credits for FYBSC - Semester I (22 C) + Semester II (22 C)			44 C

Exit Option: Award of UG Certificate Course with 44 Credits and an additional 4 Credits core NSQF course / Internship OR Continue with Major and Minor.
Continue option: Student will select one subject among the subject 1, subject 2 and subject 3 as Major and another as Minor and third subject will be dropped.

List of Zoology Courses

Credit Framework for F. Y. B. Sc. Zoology, Semester – I

Semester	Courses	Course Code	Course Title	Credits
I	Subject - 1	ZOO - 101 - T	Genetics and Medical Zoology (T)	2
		ZOO - 102 - P	Practicals in Genetics & Medical Zoology (P)	2
	Subject - 2		(T) + (P)	4
	Subject - 3		(T) + (P)	4
	GE/OE (Generic/ Open elective)	OE - 101 - ZOO	Apiculture (T)	2
	SEC (Skill Enhancement Courses) (Any One from the Basket)	SEC - 101 - ZOO	Vermiculture Management (T)	2
		SEC - 102 - ZOO	Dairy Management (T)	2
	IKS (Indian Knowledge System) (Generic)	IKS – 100 - T	Common to All (T)	2
	AEC (Ability Enhancement Courses)	AEC - 101 - T	Common to All (T)	2
	VEC (Value Education Course)	VEC - 101 - ENV	Global Environment Issues (T)	2
	CC (Cocurricular Courses)	--	------------	0
	Total			22

Credit Framework for F. Y. B. Sc. Zoology, Semester – II

Semester	Courses	Course Code	Course Title	Credits
II	Subject - 1	ZOO - 151 - T	Cell Biology and Biomedical Techniques (T)	2
		ZOO - 152 - P	Practicals in Cell Biology & Biomedical Techniques (P)	2
	Subject - 2		(T) + (P)	4
	Subject - 3		(T) + (P)	4
	GE/OE (Generic/ Open elective)	OE - 151 - ZOO	Sericulture (T)	2
		OE - 152 - ZOO	Sericulture (P)	2
	SEC (Skill Enhancement Courses) (Any One from the Basket)	SEC - 151 - ZOO	Vermiculture Management (P)	2
		SEC - 152 - ZOO	Dairy Management (P)	2
	IKS (Indian Knowledge System)		------------	0
	AEC (Ability Enhancement Courses)	AEC - 151 - ZOO	Aquarium Management (T)	2
	VEC (Value Education Course)	VEC - 151	Introduction to Indian Constitution (T)	2
	CC (Cocurricular Courses)	CC - 151 - ZOO	Fitness & Wellness (T)	2
	Total			22

List of Electronics Science Courses

Level/ Degree	Semester	Course Type	Course Code	Course Title	Remark	Credit	No. of Hrs. to be engaged
4.5 UG Certificate	I	Subject-I: Electronic Science	ELS-101-T	Fundamentals of Analog Electronics	Theory	2	30
			ELS-102-P	Practical Course-I	Practical	2	60
		Open Elective	OE -101-ELS	Basics of Computer Hardware	Theory	2	30
		Skill Enhancement Course (SEC)	SEC-101-ELS	Electronic Circuit Building and Testing	Practical	2	60
		Generic IKS	IKS-100-T	Indian Knowledge System	Theory	2	30
	II	Subject-I: Electronic Science	ELS-151-T	Fundamentals of Digital Electronics	Theory	2	30
			ELS-152-P	Practical Course-II	Practical	2	60
		Open Elective	OE-151-ELS	Basics of Computer Hardware	Theory/ Practical	2	30/60
		Skill Enhancement Course (SEC)	SEC-151-ELS	PCB Designing and Fabrication	Practical	2	60

List of Statistics Courses

Statistics as Major (Core) Subject and any other subject as Minor (each theory / practical paper has 2 credits).

Year / Level	Sem	Code Number	Title of the paper (Theory / Practical)	Credits allotted	Lecture/Practical hours per week
I 4.5/100	I	STS-101-T	Univariate and bivariate data analysis	02	02
		STS-102-P	Statistics Practical–I	02	04
	II	STS-151-T	Theory of Probability and Discrete Probability Distributions	02	02
		STS-152-P	Statistics Practical–II	02	04

BACHELOR OF SCIENCE (COMPUTER SCIENCE) PROGRAMME

Level: - 4.5 (First Year)   **Sem:-I**

Course Type	Course Code	Course Title	Credits		Teaching Scheme Hr/Week		Evaluation Scheme and Max Marks		
			TH	PR	TH	PR	CE	EE	Total
Subject 1	CS-101-T	Problem Solving using 'C' Programming	2		2		15	35	50
	CS-102-P	Lab Course based on CS-101-T		2		4	15	35	50
Subject 2	MTC-101-T	Matrix Algebra	2		2		15	35	50
	MTC-102-P	Mathematics Practical I		2		4	15	35	50
Subject 3	ELC-101-T	Principles of Analog Electronics	2		2		15	35	50
	ELC-102-P	Electronics Practical Course I		2		4	15	35	50
IKS(2)	IKS-100-T	Generic IKS	2		2		15	35	50
GE/OE* (2)	OE-101-CS -T/ OE-102-CS -T/ OE-103-CS-T / OE-104-CS-T	Office Automation I / Introduction to Computers and Basics of Internet / Introduction to Google Apps I / Fundamentals of Computers I	2		2		15	35	50
SEC (2)	SEC-101-CS	Statistical Methods for Computer Science I		2		4	15	35	50
AEC(2)	AEC-101-ENG	English	2		2		15	35	50
VEC(2)	VEC-101-ENV	EVS-I	2		2		15	35	50
Total			14	08	14	16			550

The subjects offered to other faculty students under OE vertical are OE-101-CS -P/ OE-102-CS-T/OE-103-CS-P / OE-104-CS-T. The students of B.Sc. (Computer Science) will opt the subjects offered by other faculty given in University Basket.

Level: - 4.5 (First Year)   **Sem:-II**

Course Type	Course Code	Course Title	Credits		Teaching Scheme Hr/Week		Evaluation Scheme and Max Marks		
			TH	PR	TH	PR	CE	EE	Total
Subject 1	CS-151-T	Advanced C Programming	2		2		15	35	50
	CS-152-P	Lab Course Based on CS-151-T		2		4	15	35	50
Subject 2	MTC-151-T	Graph Theory	2		2		15	35	50
	MTC-152-P	Mathematics Practical II		2		4	15	35	50
Subject 3	ELC-151-T	Principles of Digital Electronics	2		2		15	35	50
	ELC-152-P	Electronics Practical Course II		2		4	15	35	50
GE/OE* (2)	OE-151-CS-T / OE-152-CS-T / OE-153-CS-T OE-154-CS-T	Office Automation II / Computer Fundamentals / Introduction to Google Apps II/ Fundamentals of Computers II		2		4	15	35	50
SEC(2)	SEC-151-CS-P	Statistical Methods for Computer Science II		2		4	15	35	50
AEC(2)	AEC-151-ENG	English	2		2		15	35	50
VEC(2)	VEC-151-ENV	EVS-II	2		2		15	35	50
CC(2)	CC-151-T	From University Basket	2		2		15	35	50
Total			12	10	12	20			550

* The subjects offered to other faculty students under OE vertical are OE-151-CS -P/ OE-152-CS-T/OE-153-CS-P / OE-154-CS-T. The students of B.Sc. (Computer Science) will opt the subjects offered by other faculty given in University Basket.

Exit option: *Award of UG Certificate in Major with 44 credits and an additional 4 credits core as per university guidelines OR Continue with Major and Minor*

Continue option: *Student will select one subject among the (subject 2 and subject 3) as minor and subject 1 will be major subject*

Bachelor of Science (Biotechnology) Programme

First Year Biotechnology

Sr. No	Course Category	Course code	Course Title	Credit
SEMESTER -I			
1	**Subject 1**	BT-101- T	Biotechnology-I	2T
2		BT-102- P	Practicals in Biotechnology-I	2P
3	**Subject 2**	2T	----	2T
4		2P	----	2P
5	**Subject 3**	2T	----	2T
6		2P	----	2P
7	**GE/OE**	OE- 101-BT-T	Fundamentals of Environmental Biotechnology	2T
		OE- 102-BT-T	Fundamentals of Food Biotechnology	
		OE- 103-BT-T	Fundamentals of Agriculture Biotechnology	
8	**SEC**	SEC-101 BT-P	Bioinstrumentation	2P
		SEC-102 BT-P	Microscopic Techniques	
		SEC-103 BT-P	Aseptic Techniques	
9	**IKS**	IKS-101-T	Generic	2 T
10	**AEC**	AEC-101-T	English	2 T
11	**VEC**	VEC-101-T	Environmental awareness	2 T
Total Credit				**22**
SEMESTER -II			
Sr. No	Course Category	Course code	Course Title	Credit
1	**Subject 1**	BT-151-T	Biotechnology-II	2T
2		BT-152-P	Practicals in Biotechnology-II	2P
3	**Subject 2**	2T	---	2T
4		2P	---	2P
5	**Subject 3**	2T	---	2T
6		2P	---	2P
7	**GE/OE**	OE-151- BT-P	Practicals in environmental Biotechnology	2P
		OE-152- BT-P	Practicals in Food Biotechnology	
		OE-153- BT-P	Practicals in agriculture Biotechnology	
8	**SEC**	SEC-151 BT-P	Microbial culture techniques	2P
		SEC-152 BT-P	Separation techniques	
		SEC-153 BT-P	Computer in Biotechnology	
9	**AEC**	AEC-151-T	English	2 T
10	**VEC**	VEC-151-T	Environmental Biotechnology	2 T
11	**CC**	CC-151-T	PE/NSS	2 T
Total Credit				**22**

Exit option: Award of UG Certificate in Major with 44 credits and an additional 4 credits core NSQF course/ Internship   OR

Continue with Major and Minor

Continue option: Student will select one subject among the (subject 1 Biotechnology), andsubject 3) as major and another as minor

Value Education Course (VEC)

VEC-101-T: Environment Education-I   **No. of Credits: 2**

Course type: VEC (Theory)

Semester: I

Chapter 1: Humans and the Environment

Chapter 2: Natural Resources and Sustainable Development

Chapter 3: Environmental Issues: Local, Regional and Global

Chapter 4: Conservation of Biodiversity and Ecosystems

Semester: II

VEC-151-T: Environment Education-II   **No. of Credits: 2**

Course type: VEC (Theory)

Chapter 1: Environmental Pollution and Health

Chapter 2: Climate Change: Impacts, Adaptation and Mitigation

Chapter 3: Environmental Management

Chapter 4: Environmental Treaties and Legislation

Ability Enhancement Course

Subject: English: Professional Communication Skills

Semester – I

Unit No.	Topic
1.	**Basic Language Skills:** **A) Grammar**
2.	**B)Vocabulary :**
3.	**C) Speaking for Different Purpose:** **a) Meeting and Greeting People** **b) Group Discussion, Interview and Interviewing Skills** **c) Presentation Skills**

Semester – II

Unit No.	Topic
1.	**Forms of Writing:**
2.	**Soft Skills** **a) Introduction to Soft Skills** **b) Soft Skills in Career Prospects**
3.	**Business Communication:**

Science: CC-151: Co-Curricular Courses

Semester II (Credits: 02)

Basket of Co-curricular Courses

1. Health and Wellness

2. Yoga education

3. Sports and Fitness

4. Cultural Activities

5. NSS

6. NCC

7. Fine Arts

8. Applied Arts

9. Visual Arts

10. Performing Arts

11. Dancing

12. Art of Short Film Making / Cinematography

13. Basics of Music Composition

14. Physical Fitness

15. Self Defense for Women

16. Jeevan Vidya (Work Life Balance)

17. Integrated Personality Development

18. Design Thinking

19. Innovation and Creativity

20. Principle Centered Leadership

21. Mentoring of School Children

22. Basics of Fire Safety

23. Representation or Participation at State, National and International Co-curricular Events (Activity Report and Certificate are needs to be produced)

BASKET for Skill Enhancement Course (SEC)

Class: First Year (Sem-I&II)

Sr. No.	Faculty	Semester	Name of the Course	Code
1	BSc Mathematics	I	1. Python-I	1. SEC-101MTS-P
		II	1. Python-II	1. SEC-151MTS-P
2	BSc Botany	I	1. Flower Design Techniques 2. Post-Harvest Technology 3. Algal Technology	1. SEC-101-BOT-P 2. SEC-102-BOT-P 3. SEC-103-BOT-P
		II	1. Plant Preservation Techniques 2. Millets for Sustainable Agriculture Development 3. Plant Propagation Techniques	1. SEC-151-BOT-P 2. SEC-152-BOT-P 3. SEC-153-BOT-P
3	BSc Electronics Science	I	1. Electronic Circuit Building and Testing	1. SEC-101- ELS-P
		II	2. PCB Designing and Fabrication	1. SEC-151- ELS-P
4	BSc Zoology	I	1. Vermiculture Management 2. Practicals in Advanced Vermitechnology	1. SEC-101–ZOO-T 2. SEC-102-ZOO-P
		II	1. Vermiculture Management 2. Dairy Management	1. SEC-151–ZOO-P 2. SEC-152-ZOO-P
5	BSc Geography	I	1. Python-I	1. SEC-101MTS-P
		I	1. Introduction to Cartography 2. Introduction to Digital Mapping	1. SEC-101-GEO-T 2. SEC 102-GEO-T
		II	1. Practicals in Cartographic Techniques 2. Practicals in Digital Mapping	1. SEC-151-GEO-P 2. SEC-152-GEO-P
6	BSc Physics	I	1. Experimental Skills in Physics 2. Physics of Water Filtration Systems 3. Renewable Energy and Energy Harvesting 4. Programming for Physical Applications (C++ / Python)	1. SEC-101-PHY-P 2. SEC-102-PHY-P 3. SEC-103-PHY-P 4. SEC-104-PHY-P
		II	1. Numerical Techniques in Physics 2. Introduction to Laser and Fibre Optics 3. Radiation Safety 4. Basic Lab Electric devices and Circuits	1. SEC-151-PHY-P 2. SEC-152-PHY-P 3. SEC-153-PHY-P 4. SEC-154-PHY-P
7		I	1. MS-EXCEL for Data Analysis	1. SEC-101-STS-P

			(Practical Course)	
	BSc Statistics	II	1. Computational Statistics using MSEXCEL (Practical Course)	2. SEC-151-STS-P
8	BSc Biotechnology	I	1. Bioinstrumentation	1. SEC-101 BT-P
			2. Microscopic Techniques	2. SEC-102 BT-P
			3. Aseptic Techniques	3. SEC-103 BT-P
		II	1. Microbial culture techniques	1. SEC-151 BT-P
			2. Separation techniques	2. SEC-152 BT-P
			3. Computer in Biotechnology	3. SEC-153 BT-P
9	BSc Chemistry	I	1. Chemistry Laboratory Skills	1. SEC-101-CHE-T
		II	1. Chemistry Laboratory Skills – II 2. Chemistry Laboratory Skills – II(Practical)	1. SEC-151-CHE-T 2. SEC-151-CHE-P
10	B. Sc. (Computer Science)	I	1. Statistical Methods for Computer Science I	1. SEC-101-CS-P
		II	1. Statistical Methods for Computer Science II	1. SEC-151-CS-P

BASKET for Generic Elective (GE) / Open Elective (OE)
Class: First Year (Sem-I&II)

Sr. No	Faculty	Semester	Name of the Course	Code
1	B.Sc Mathematics	I	1. Basic Mathematics- I 2. Applied Mathematics – I	OE-101 MTS-T OE-102 MTS-T
		II	1. Basic Mathematics – II 2. Applied Mathematics - II	OE-151 MTS-P OE-152 MTS-P
2	B.Sc. Botany	I	1. Agro-tourism 2. Plants and Human Welfare 3. Agriculture for Competitive Exams	OE-101-BOT-T OE-102-BOT-T OE-103-BOT-T
		II	1. Fruit Processing and Flower Arrangement 2. Mushroom technology 3. Vertical and Terrace Gardening	OE-151-BOT-P OE-152-BOT-P OE-153-BOT-P
3	B.Sc Electronics Science	I	1. Basics of Computer Hardware	OE -101-ELS-T
		II	1. Basics of Computer Hardware	OE-151-ELS-P
4	B.Sc Zoology	I	1. Apiculture 2. Pet Breeding & Management	OE-101–ZOO-T OE-102–ZOO-T
		II	1. Apiculture 2. Wildlife Photography	OE-151–ZOO-P OE-152–ZOO-P
5	B.Sc Geography	I	1. Geography of Rural Development 2. Agriculture Geography	OE-101-GEO-T OE-102-GEO-T
		II	1. Practicals in Rural Development 2. Practicals in Agriculture Geography	OE-151-GEO-P OE-152-GEO-P
6	B.Sc Physics	I	1. Physics of Daily Life 2. Biological Physics	OE-101-PHY-T OE-102-PHY-T
		II	1. LED Light Repairing and Maintenance 2. Maintenance and Repairing of Physics Lab equipment	OE-151-PHY-P OE-152-PHY-P

7	B.Sc (Statistics)	I	1. Elementary Commercial Statistics 2. Elementary Statistics for Social Science	OE-101-STS-T OEP-102-STS-T	
		II	1. Practical on Elementary Commercial Statistics 2. Practical on Elementary Statistics for Social Sciences	OEP-151-STS-P OEP-152-STS-P	
8	B.Sc Biotechnology	I	1. Fundamentals of Environmental Biotechnology	OE- 101-BT-T	
			2. Fundamentals of Food Biotechnology	OE- 102-BT-T	
			3. Fundamentals of Agriculture Biotechnology	OE- 103-BT-T	
		II	1. Practicals in environmental Biotechnology	OE-151- BT-P	
			2. Practicals in Food Biotechnology	OE-152- BT-P	
			3. Practicals in agriculture Biotechnology	OE-153- BT-P	
9	B.Sc Chemistry	I	1. Kitchen and Daily Life Chemistry 2. Chemistry for Competitive Examination - I	OE-101-CHE-T OE-101-CHE-T	
		II	1. Chemistry for Competitive Examination – II 2. General Chemistry Practical-I	OE-151-CHE-T OE-151-CHE-P	
			1. Office Automation 2. Introduction to Google Tools	OE-151-CDS-P	
10	B. Sc. (Computer Science)	I	1. Office Automation I 2. Introduction to Computers and Basics of Internet 3. Introduction to Google Apps I	OE-101-CS-T OE-102-CS-T OE-103-CS-T	
		II	1. Office Automation II 2. Computer Fundamentals 3. Introduction to Google Apps II	OE-151-CS-P OE-152-CS-P OE-153-CS-P	

Master of Science (Computer Science) Programme

SEMESTER- I

Course Type	Course code	Course Name	Credits		Teaching Scheme Hrs/Week		Examination Scheme and Marks		
			TH	PR	TH	PR	CE	EE	Total
Major Core	CS-501-MJ	Advanced Operating System	4	-	4	--	30	70	100
	CS-502-MJ	Artificial Intelligence	4	-	4	--	30	70	100
	CS-503-MJ	Principles of Programming Languages	2	-	2	--	15	35	50
	CS-504-MJP	Lab course on CS-501-MJ	-	2	--	4	15	35	50
	CS-505-MJP	Lab course on CS-502-MJ	-	2	--	4	15	35	50
Major Elective	CS-510-MJ	Advance Databases and Web Technologies	2	-	2	--	15	35	50
	CS-511-MJP	Lab course on CS-510-MJ	-	2	--	4	15	35	50
	OR								
	CS-512-MJ	Cloud Computing	2	-	2	--	15	35	50
	CS-513-MJP	Lab course on CS-512-MJ	-	2	--	4	15	35	50
	OR								
	CS-514-MJ	C# .NET Programming	2	-	2	--	15	35	50
	CS-515-MJP	Lab Course on CS-514-MJ	-	2	--	4	15	35	50
RM	CS-531-RM	Research Methodology	4	-	4	--	30	70	100
		Total	**16**	**6**					

SEMESTER -II

Course Type	Course code	Course Name	Credits		Teaching Scheme Hrs/Week		Examination Scheme and Marks		
			TH	PR	TH	PR	CE	EE	Total
Major Core	CS-551-MJ	Design and Analysis of Algorithms	4	-	4	--	30	70	100
	CS-552-MJ	Mobile App Development Technologies	4	-	4	--	30	70	100
	CS-553-MJ	Software Project Management	2	-	2	--	15	35	50
	CS-554-MJP	Lab course on CS-551-MJ	-	2	--	4	15	35	50
	CS-555-MJP	Lab course on CS-552-MJ	-	2	--	4	15	35	50
Major Elective	CS-560-MJ	Full Stack Development - I	2	-	2	--	15	35	50
	CS-561-MJP	Lab Course on CS-560-MJ	-	2	--	4	15	35	50
	OR								
	CS-562-MJ	Web Services	2	-	2	--	15	35	50
	CS-563-MJP	Lab Course on CS-562-MJ	-	2	--	4	15	35	50
	OR								
	CS-564-MJ	ASP.NET Programming	2	-	2	--	15	35	50
	CS-565-MJP	Lab course on CS-564-MJ	-	2	--	4	15	35	50
On Job Training	CS-581-OJT	On Job Training/Internship (120 Hours)	-	4	-	-	30	70	100
Total			12	10					

Master of Science (Organic Chemistry) Programme

Semester- I

Sr. No.	Course Title	Course Code	Major Core/ Major elective	Credits
1	Physical Chemistry-I	CHE-501	Major Core	4
2	Inorganic Chemistry-I	CHEOD-502	Major Core	2
3	Organic Chemistry-I	CHE-503	Major Core	4
4	Physical Chemistry Practical -I	CHE-504	Major Core	2
5	Inorganic Chemistry Practical-I	CHE-505	Major Core	2
6	Organic Chemistry Practical-I	CHE-506	Major elective	2
7	Chemical Mathematics	CHE-507(A)	Major elective	2
	Chemistry of Nanomaterials	CHE-507(B)		
	Analytical Chemistry	CHE-507(C)		
	Organic Reactions and Reagents	CHEOD-507(D)		
8	Research Methodology	CHE-508	RM	4

Semester- II

Sr. No.	Course Title	Course Code	Major Core/ Major elective	Credits
1	Physical Chemistry-II	CHEOD-551	Major Core	2
2	Inorganic Chemistry-II	CHE-552	Major Core	4
3	Organic Chemistry-II	CHE-553	Major Core	4
4	Physical Chemistry Practical -II	CHE-554	Major Core	2
5	Inorganic Chemistry Practical-II	CHE-555	Major Core	2
6	Organic Chemistry Practical-II	CHE-556	Major elective	2
7	Organometallic Compounds and Inorganic Reaction Mechanism	CHE-557(A)	Major elective	2
	Material Characterization Techniques	CHE-557(B)		
	Green Chemistry	CHE-557(C)		
	Nuclear and Radiation Chemistry	CHEOD-557(D)		
8	On-Job Training/Internship	CHE-558	OJT/Internship	4

Professor Dr. Manjusha M. Kulkarni

I/C Principal