

SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI



THREE-YEAR UNDERGRADUATE PROGRAMME

Bachelor of Science (B.Sc.)

Subject: ENVIRONMENTAL SCIENCE

FACULTY: SCIENCE AND TECHNOLOGY

(Courses effective from Academic Year 2026-2027 Under Uniform NEP 2020)

Scheme of Teaching-Learning-Evaluation, Credit Distribution, Workload Calculation and Examination

Credit Distribution

Three/Four-year UG Degree Programme (Level 4.5 to 5.5)

Vertical	Vertical Type	I	II		III	IV	V	VI	Total Credits	Grand Total
	(i) Three-year UG Degree Programme (Level 4.5.to 5.5)									
A	Major DSC (60–64) (Minimum 50% of Total Credits)	4	4	Major	6	8	8	8	38	48
				IKS	2				2	
		0	0	Elective	0	0	4	4	8	
B	Minor (from same faculty of DSC) (18–24)	4	4		4	4	4	4	24	24
C	Generic/Open Elective (OE) (Faculty-wise basket other than Major/Minor faculty) (10–12)	4	4		2	2	0	0	12	12
D(i)	Vocational Skill Courses (VSEC) corresponding to Major/Minor (8–10)	0	2		2	2	2	2	10	16
D(ii)	Skill Enhancement Courses (SEC)	2	2		0	0	2	0	6	
E(i)	Ability Enhancement Courses (AEC) (English + Modern Indian Language)	1+1	1+1		1+1	1+1	0	0	8	14
E(ii)	Indian Knowledge System (IKS) 2 Generic	2	0		0	0	0	0	2	
E(iii)	Value Education Courses (VEC) (Understanding India, EVS, Digital & Technological Solution) 4	2	2		0	0	0	0	4	
F(i)	Internship / Apprenticeship corresponding to Major 8 (OJT)	0	0		0	0	0	4	4	18
F(ii)	Field Projects / Community Engagement & Service (CEP) corresponding to Major 4-6	0	0		2	2	2	0	6	
F(iii)	Co-curricular Courses (CC) (health & wellness, yoga education, sports, fitness, cultural activities, NSS/ NCC & Fine/ Applied/ Visual/ Performing Arts 8	2	2		2	2	0	0	8	
	Total Credits per Semester	22	22		22	22	22	22	132	132

(ii) Four-year UG Degree programme (Level 6.0) Honors Degree in Major or Minor						
A. Honors Degree in Major or Minor						
	Vertical Type			Semester VII	Semester VIII	
	Major (Offered at Three-year UG Programme)	Mandatory		12-14(2*4+2*2 or 3*4+2)	12-14(2*4+2*2 or 3*4+2)	28
		Elective		4	4	8
	Research Methodology (RM)			4	0	8
	On the Job Training (OJT)			0	4	4
	Total			22	22	44
	Cumulative			(132+44) 176		
(ii) Four-year UG Degree Programme (Level 6.0)						
B. Honors with Research Degree in Major or Minor						
	Major (Offered at Three-year UG Programme)			Semester VII	Semester VIII	
		Mandatory		8-10 (24+2 or 24)	8-10 (24+2 or 24)	20
		Elective		4	4	8
	Research Methodology (RM)			4	0	4
	Research Project (RP)			4	8	12
	Total			22	22	44
	Cumulative			(132+44) 176		

Sant Gadge Baba Amravati University, Amravati
Teaching and Learning Scheme for the Degree of Bachelor of Science
FACULTY: SCIENCE AND TECHNOLOGY
TLE Scheme for FIRST YEAR: SEMESTER – I (Environmental Science) (Level 4.5)
(As per uniform NEP Scheme)

Mode of Teaching	Vertical No.	The Vertical	Type of Course	Course Code	Course Name	Credits	Workload (Hrs/Week)	Vertical Workload (Hrs/Week)
Classroom Teaching / Lab Work (Practical)/ Outdoor / Field	a.	Major/ Minor	Theory1	114200	Fundamentals of Environmental Science	2	2	6
			Lab/Practical-1	114201	Environmental Science Major Lab-1	2	4	
	b.	Minor/ Major	Theory	--	--	-	-	
			Lab/Practical	-	-	-	-	
	c.	Generic/ Open Elective	Theory-1	114261	Energy and Environment	2	2	4
			Theory-2	114262	Sustainable Development	2	2	
	d.	VSC	-		-	-	-	4
		SEC	Lab/Practical-3	114271	Activities on Energy and sustainability	2	4	
	e.	AEC - English	Theory		Refer University basket	1	1	6
		AEC –MIL	Theory		Refer University basket	1	1	
		IKS-Generic	Theory		Refer University basket	2	2	
		VEC	Theory		Refer University basket	2	2	
	f.	CC	Outdoor		Separate SOP will be released	2	4	4
		TOTAL				18	24	24

Here mention the Minor Subject Opted by Student

TLE Scheme for FIRST YEAR: SEMESTER – II (Level 4.5)

Mode of Teaching	Vertical No.	The Vertical	Type of Course	Course Code	Course Name	Credits	Workload (Hrs/Week)	Vertical Workload (Hrs/Week)
Classroom Teaching / Lab Work (Practical)/ Outdoor / Field	a.	Major/ Minor	Theory2	114202	Environment and Ecology	2	2	6
			Lab/Practical-2	114203	Major Lab/ Pr- Environment and Ecology	2	4	
	b.	Minor/ Major	Theory	-	-	-	-	-
			Lab/Practical-5	-	-	-	-	
	c.	Generic/ Open Elective	Theory3	114263	Solid Waste Management	2	2	4
			Theory4	114264	Water and Water Resources	2	2	
	d.	VSC	Lab/Practical-5	114272	Hands-on Techniques in Ecology and Biodiversity Studies	2	4	8
		SEC	Lab/Practical-6	114273	Basics of Solid Waste Management.	2	4	
	e.	AEC - English	Theory		Refer University basket	1	1	4
		AEC –MIL	Theory		Refer University basket	1	1	
		VEC	Theory		Refer University basket	2	2	
	f.	CC	Outdoor		Separate SOP will be released	2	4	4
		TOTAL				18	26	26

*** Important:**

- VSC Should be Complementary to Major/Minor
- SEC has to be selected from the Basket Provided by University, from the same Faculty/Discipline of the Major/Minor

TLE Scheme for SECOND YEAR: SEMESTER – III (Level 5.0)

Mode of Teaching	Vertical No.	The Vertical	Type of Course	Course Code	Course Name	Credits	Workload (Hrs/Week)	Vertical Workload (Hrs/Week)
Classroom Teaching / Lab Work (Practical)/ Outdoor / Field	a.	Major	Theory -1	114204	Dynamics of Biodiversity	2	2	8
			Theory -2	114205	Environmental Chemistry	2	2	
			Lab/Practical-8	114206	Major Lab- Techniques in Biodiversity and Environmental Chemistry	2	4	
		IKS	Theory	114207	Environmental Conservation in Ancient India	2	2	
	b.	Minor	Theory	114208	Fundamentals of Environmental Chemistry	2	2	6
			Lab/Practical-9	114209	Minor Lab- Fundamentals of Environmental Chemistry	2	4	
	c.	Generic/ Open Elective	Theory	114265	Ecotourism and Environmental Ethics.	2	2	2
	d.	VSC	Lab/Practical-10	114274	Skills for Conservation Biologist	2	4	4
	e.	AEC - English	Theory		Refer University basket	1	1	2
		AEC –MIL	Theory		Refer University basket	1	1	
	f.	Project	Project	114210	FP/ Community Engagement Service in Environmental Science Phase-I	2	4	8
	g.	CC	Outdoor		Separate SOP will be released	2	4	
	Total							30

Important: * VSC Should be Complementary to Major

** SEC has to be selected from the Basket Provided by University, from the same Faculty/Discipline of the Major/Minor

TLE Scheme for SECOND YEAR: SEMESTER – IV (Level 5.0)

Mode of Teaching	Vertical No.	The Vertical	Type of Course	Course Code	Course Name	Credits	Workload (Hrs/Week)	Vertical Workload (Hrs/Week)
Classroom Teaching / Lab Work (Practical)/ Outdoor / Field	<u>a.</u>	Major	Theory -3	114211	Environmental Pollution-1	2	2	8
			Theory-4	114212	Environmental Pollution-2	2	2	
			Theory - N	114217	Global Environmental Change and Resilience			
			Lab/Practical-11	114213	Lab/Practical based on Environmental pollution.	2	4	
	<u>b.</u>	Minor	Theory -9	114214	General Approach of Environmental Pollution.	2	2	6
			Lab/Practical-12	114215	Lab work: General Approach of Environmental Pollution.	2	4	
	<u>c.</u>	Generic/ Open Elective	Theory	114266	Global environmental issues.	2	2	2
	<u>d.</u>	VSC	Lab/Practical-13	114275	Skills for Environmental Lab Technician: Water Sampling & Analysis.	2	4	4
	<u>e</u>	AEC - English	Theory		Refer University basket	1	1	2
		AEC –MIL	Theory		Refer University basket	1	1	
	f	Project	Project	114216	FP/ Community Engagement Service Phase-II	2	4	8
	g	CC	Outdoor		Separate SOP will be released	2	4	
	<u>Total</u>							32

Important: VSC Should be Complementary to Major and SEC has to be selected from the Basket Provided by University, from the same Faculty/Discipline of the Major/Minor

TLE Scheme for THIRD YEAR: SEMESTER – V (Level 5.5)

Mode of Teaching	Ver. No	Vertical	Type of Course	Course Code	Course Name	Credits	Workload (Hrs/Week)	Vertical Workload (Hrs/Week)
Classroom Teaching / Lab Work (Practical)/ Outdoor / Field	a.	Major	Theory-7	114218	Fundamentals of Environmental Pollution and Control Technology	2	2	16
			Theory-8	114219	Air and Water Pollution Control Technology	2	2	
			Theory-9	114220	Integrated Waste Management	2	2	
			Lab/Practical-15	114221	Practical based on Major-7,8 and 9	2	4	
		Major (Elective)	Theory Elective-1	114222	Fundamentals of Health, Safety and Environment	2	2	
			Lab/Pract. Elective-1	114223	Practical based on Elective -1			
			Theory-2	114224	Environmental Restoration and planning			
			Lab/PracticalElec tive-2	114225	Practical based on Major Electives- 2	2	4	
	b.	Minor	Theory-5	114226	Global climatic Issues.	2	2	6
			Lab/Practical-18	114227	Practical based on Minor theory	2	4	
	c.	Generic/Open Elective	-	-	-	-	-	-
	d.	VSC	Lab/Practical-19	114277	Course in Water Treatment Plant Operation	2	4	8
		SEC	-	114278	Field and Lab skills for Environmental quality analysis.	2	4	
	e.	VEC	-	-	-	-	-	0
	f.	FP/CES	Project	114228		2	4	4
		CC	-	-	-	-	-	-
		AI						
		TOTAL				22	34	34

Important:

- VSC Should be Complementary to Major

SEC has to be selected as per above T and L Scheme or from the Basket Provided by University, from the same Faculty/Discipline of the, Major/M

TLE Scheme for THIRD YEAR: SEMESTER – VI (Level 5.5)

Mode of Teaching	Ver. No	Vertical	Type of Course	Course Code	Course Name	Credits	Workload (Hrs/Week)	Vertical Workload (Hrs/Week)
Classroom Teaching / Lab Work (Practical)/ Outdoor / Field	a.	Major	Theory-10	114229	Natural Resource Management, Sustainability and Natural Resource Management.	2	2	16
			Theory-11	114230	Environmental Management and Governance	2	2	
			Theory-12	114231	Geospatial Technologies and Environmental legislation.	2	2	
			Lab/Practical-15	114232	Practical based on Major-	2	4	
		Major (Elective)	Theory Elective-3	114233	Health, Safety and Environmental Management Systems	2	2	
			Lab	114234	Practical based on elective-3			
			Theory Elective-4	114235	Environmental Restoration and management	2	4	
			Lab/Practical-17	114236	Practical based on Major- Elective-4			
	b.	Minor	Theory5	114237	Environmental Education and Awareness	2	2	6
			Lab/Practical-18	114238	Practical based on Minor	2	4	
	c.	Generic/Open Elective	-	-	-	-	-	-
	d.	VSC	Lab/Practical-19	114279	Hand on -Environmental audit	2	4	4
		SEC	-	-	-	-	-	
	e.	VEC	-	-	-	-	-	0
		Internship /Apprenticeship	OJT	114239		4	8	8
	f.	FP/CES	Project	-	--	--	--	--
		CC	-	-	-	-	-	-
		TOTAL				22	34	34

Important:

- VSC Should be Complementary to Major

SEC has to be selected as per above T and L Scheme or from the Basket Provided by University, from the same Faculty/Discipline of the, Major/M

SWAYAM/NPTEL Courses under NEP 2020

Sr. No.	Semester	Course Title	Course Code*	Credits**	Institution	Agency	Enrollment Ends	Link to Enroll
1	I	Certificate course in Environmental Sustainability	CCESIGNNOV15	4	Indira Gandhi National Open University, New Delhi	IGNOU	15 Nov 2026	https://onlinecourses.swayam2.ac.in/e-learning/preview/nou26_ag15
2	II	Environment And Development	EDNPTOCT09	4	IIT Guwahati	NPTEL	09 Oct 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_hs216
3	III	Environmental Science	ESNPTOCT09	4	IIT Kharagpur	NPTEL	09 Oct 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_hs210
4	IV	Environmental Impact Assessment for Environmental Health	EIAEHIGNNOV15	4	IGNOU, New Delhi	IGNOU	15 Nov 2026	https://onlinecourses.swayam2.ac.in/e-learning/preview/nou26_es11
5	IV	Environmental Chemistry	ECNPTOCT09	4	IIT Roorkee	NPTEL	09 Oct 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_ce106
6	V	Environmental Issues	EIIGNNOV15	4	Indira Gandhi National Open University, New Delhi	IGNOU	15 Nov 2026	https://onlinecourses.swayam2.ac.in/e-learning/preview/nou26_ge97
7	VI	Environmental Modeling and Simulation	EMSNPTOCT09	4	IIT Roorkee	NPTEL	09 Oct 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_ce108

* Course codes may vary according to the year and session of enrollment

** Credits will be awarded as per provisions of the SWAYAM/NPTEL at the time of actual enrollment.

Instructions for Enrollment in SWAYAM/NPTEL Courses under NEP 2020

All students of **B.Sc. with Environmental Science as Major or Minor** of all semesters are encouraged to enroll in suitable SWAYAM/NPTEL online courses to enhance their academic knowledge, practical skills, and employability.

General Instructions

1. Students may choose any course of their interest listed in table above for specific semester.
2. Before enrollment, students must ensure that they have an active Academic Bank of Credits (ABC) ID. The same ABC ID should be used while registering for the selected SWAYAM/NPTEL course so that earned credits can be deposited in the Academic Bank of Credits.
3. Students should carefully read the course details including duration, eligibility, syllabus, examination schedule, and credit structure before enrolling.
4. Merely enrolling in a course does not make a student eligible for academic credits. Students must:
Complete the course requirements, Appear for the proctored examination, and Successfully pass the examination as per the norms prescribed by SWAYAM/NPTEL.
5. Credits will be awarded only after successful completion and certification of the course by the concerned agency.
6. Every student must submit the details of the enrolled course to the Department of Botany immediately after registration.
7. Submission of enrollment details to the Department is mandatory to facilitate record maintenance and compliance with University requirements regarding credit transfer and academic documentation.
8. Students are advised to preserve all course-related documents, including Enrollment confirmation, Course progress records, Examination registration receipt, Score card, Final certificate.
9. Students shall be responsible for timely registration for the examination, payment of examination fees (if applicable), and completion of all course requirements within the stipulated period.
10. The Department of shall not be responsible for missed deadlines, incomplete registrations, examination non-appearance, or failure to satisfy the certification requirements of the concerned SWAYAM/NPTEL course.
11. After successful completion of the course, students must submit a copy of the course certificate and score card to the Department of Botany for further processing and reporting to the University.