

SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI



THREE-YEAR UNDERGRADUATE PROGRAMME

Bachelor of Science (B.Sc.)

Subject: BOTANY

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+	0	0	8	14
		1	1		1	1				
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	18
F(i)	Internship / Apprenticeship corresponding to Major 8 (OJT)	0	0		0	0	0	4	4	
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	2 2	2 2	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)	Mandator y		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 (Botany) (Level 4.5)

(As per uniform NEP Scheme)

The Vertical	Type of Course	Course Code	Course Title	Credits	Workload	Theory/Practical				Theory/Pract (Total)	
						External		Internal		Max. Marks	Min. Marks
						Max. Marks	Min. Marks	Max. Marks	Min. Marks		
Major / Minor	Theory	107201	Foundations of Plant Science and Career Development	2	2	30	9	20	6	50	20
	Lab/Practical	107202	Foundations and Prospects of Plant Science	2	4	25	10	25	10	50	20
Minor / Major	Theory	-	-	2	2	30	9	20	6	50	20
	Lab/Practical	-	-	2	4	25	10	25	10	50	20
GOEC	Theory	107203	Plant Health Care	2	2	30	9	20	6	50	20
GOEC	Theory	107204	Kitchen Gardening	2	2	30	9	20	6	50	20
VSC	-	-	-	-	-	-	-	50	20	50	20
SEC	Lab/Practical	107205	Medicinal Plant Cultivation and Processing	2	4	-	-	50	20	50	20
AEC - English	Theory		Refer University basket	1	1						
AEC –MIL	Theory		Refer University basket	1	1						
IKS-Generic	Theory		Refer University basket	2	2						
VEC	Theory		Refer University basket	2	2						

CC	Outdoor		Separate SOP will be released	2	4						
TOTAL				22	30						

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

The Vertical	Type of the Course	Course Code	Course Title	Credits	Workload	Theory/Practical				Theory/Pract	
						External		Internal		(Total)	
						Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks
Major / Minor	Theory	107206	Fundamental Life Processes in Plants	2	2	30	9	20	6	50	20
	Lab/Practical	107207	Hands on Exploration of Life Processes	2	4	30	9	20	6	50	20
Major / Minor	Theory		-	2	2	25	10	25	10	50	20
	Lab/Practical		-	2	4	30	9	20	6	50	20
GOEC	Theory	107208	Floriculture and Value Additions	2	2	25	10	25	10	50	20
GOEC	Theory	107209	AYUSH	2	2	30	9	20	6	50	20
VSC	Lab/Practical	107210	Commercialization of Medicinal Plant and Products	2	4	-	-	50	20	50	20
SEC	Lab/Practical	107211	Seed Development Technology	2	4	-	-	50	20	50	20
AEC - English			Refer University basket	1	1	-	-	50	20	50	20
AEC –MIL			Refer University basket	1	1	-	-	50	20	50	20
VEC			Refer University basket	2	2						
CC			Separate SOP will be released	2	4						
TOTAL				22	32						

* 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)

The Vertical	Type of the Course	Course Code	Course Title	Credits	Workload	Theory/Practical				Theory/Pract (Total)	
						External		Internal			
						Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks
Major	Major-T	107212	Microbial Diversity	2	2	30	9	20	6	50	20
Major	Major-T	107213	Cryptogams and Gymnosperms	2	2	30	9	20	6	50	20
Major	Major-P	107214	Techniques in Microbial Studies, Plant Diseases and Cryptogams and Gymnosperms	2	2	30	9	20	6	50	20
Major	IKS-T	107215	Sacred Plant Heritage of Maharashtra	2	2	30	9	20	6	50	20
Minor	Minor-T	107216	Plant Diversity, Conservation and Forensic Botany	2	2	30	9	20	6	50	20
Minor	Minor-P	107217	Practical Approach towards Plant Diversity, Conservation and Forensic Botany	2	4	25	10	25	10	50	20
GOEC	GOEC-T	107218	Traditional Health Care	2	2	30	9	20	6	50	20
VSC	VSC-P	107219	Supply Chain Management in Seed Products	2	4	-	-	50	20	50	20
FP/CES	FP/CES	10720	Botany Lab (FP/ CEP in Botany - I)	2	4	-	-	50	20	50	20
CC	CC		Separate SOP shall be consulted from University website	2	4	-	-	50	20	50	20

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)

The Vertical	Type of the Course	Course Code	Course Title	Credits	Workload	Theory/Practical				Theory/Pract (Total)	
						External		Internal		Max. Marks	Min. Marks
						Max. Marks	Min. Marks	Max. Marks	Min. Marks		
Major	Major-T	107221	Botanical Wealth – Economic Botany, Ethnomedicine and Phytochemistry	2	2	30	9	20	6	50	20
Major	Major-T	107222	Cellular Frontiers in Botany - Cell Biology, Cytogenetics and Molecular Biology	2	2	30	9	20	6	50	20
Major	Major-T*	107230	Angiosperm Taxonomy	2	2	30	9	20	6	50	20
Major	Major-P	107223	Experimental Botany in Economic, Medicinal, Cellular, Molecular, Morphological and Taxonomic Studies	2	4	25	10	25	10	50	20
Minor	Minor-T	107224	Plant Propagation and Growth	2	2	30	9	20	6	50	20
Minor	Minor-P	107225	Investigations of Plant Life Sketch	2	4	25	10	25	10	50	20
GOEC	GOEC-T	107226	Wonders of Plant World	2	2	30	9	20	6	50	20
VSC	VSC-P	107227	Nursery and Garden Management	2	4	-	-	50	20	50	20
SEC	SEC-P#	107228	Skilling Botanists for Nursery and Garden Management (Discontinued from 2026-27)	2	4	-	-	50	20	50	20
FP/CES	FP/CES	107229	Botany Lab 14 (FP/ CEP in Botany - II)	2	4	-	-	50	20	50	20
CC	CC		Separate SOP shall be consulted from University website	2	4	-	-	50	20	50	20

*** To be implemented w.e.f. academic session 2026-27**

- Only applicable up to academic session 2025-26

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)

The Vertical	Type of the Course	Course Code	Course Title	Credits	Workload	Theory/Practical Marks				Theory/Pract (Total) Marks	
						External		Internal		Max.	Min.
						Max.	Min.	Max.	Min.		
Major	Major-T	10723 1	Theoretical Foundations in Anatomy, Embryology, and Pharmacognosy	2	2	30	9	20	6	50	20
Major	Major-T	10723 2	Innovative technologies of Genetics, Plant Breeding, Green Revolution and Biotechnology	2	2	30	9	20	6	50	20
Major	Major-T	10723 4	Biochemistry and Plant Physiology	2	2	30	9	20	6	50	20
Major	Major-P	10723 5	Practical Based on Major Theory Papers of Semester V	2	4	25	10	25	10	50	20
Major	Major-Elective T1	10723 6	Plant Systematics - 1	2	2	30	9	20	6	50	20
Major	Major-Elective P1	10723 7	Lab-Based Learning of Plant Systematics - 1	2	4	25	10	25	10	50	20
OR											
Major	Major-Elective T2	10723 8	Molecular Biology and Genetic Engineering - 1	2	2	30	9	20	6	50	20
Major	Major-Elective P2	10723 9	Lab-Based Learning of Mole.Bio. and Genetic Eng. - 1	2	4	25	10	25	10	50	20
OR											
Major	Major-Elective T3	10724 0	Advance Plant Physiology - 1	2	2	30	9	20	6	50	20
Major	Major-Elective P3	10724 1	Lab-Based Learning of Advance Plant Physiology - 1	2	4	25	10	25	10	50	20
OR											
Major	Major-Elective T4	10724 2	Basic and Applied Mycology and Plant Pathology- 1	2	2	30	9	20	6	50	20
Major	Major-Elective P4	10724 3	Lab-Based Learning of Basic and Applied Mycology and Plant Pathology- 1	2	4	25	10	25	10	50	20

Minor	Minor-T	10724 4	Biochemistry, Plant Physiology and Ecology	2	2	30	9	20	6	50	20
Minor	Minor-P	10724 5	Lab Techniques in Biochemi, Plant Physio. and Ecology	2	4	25	10	25	10	50	20
VSC	VSC-P	10724 6	Eco-Friendly Plant Products	2	4	-	-	50	20	50	20
SEC	SEC-P1	10724 7	Skilling Botanists for Nursery and Garden Management (from session 2027-2028 onwards)	2	4	-	-	50	20	50	20
OR											
SEC	SEC-P2	10724 8	Mushroom Culture Technology & Production (From Session 2026-27 Onwards)	2	4	-	-	50	20	50	20
OR											
SEC	SEC-P3	10724 9	Biofertilizer Technology (From Session 2026-27 Onwards)	2	4	-	-	50	20	50	20
OR											
	SEC-P4	10725 0	Herbs and Herbal Products	2	4	-	-	50	20	50	20
FP/CEP	FP/CEP	10725 1	Botany Lab (Field Project / Community Engagement Program)	2	4	-	-	50	20	50	20
Non Credit	Non Credit		Foundation of Artificial Intelligence	NC	2			30+20	9+6	50	20

Important:

- **VSC Should be Complementary to Major**
- **SEC must be selected from the Basket Provided by University, from the same Faculty/Discipline of the Major/Minor**
- As per Sant Gadge Baba Amravati University, Amravati Extra-Ordinary Notification No. No. 241/2025 Dated 24/12/2025 “Foundation of Artificial Intelligence” is the Mandatory **Non-Credit Course** compulsory course for all the UG students in fifth semester of all undergraduate programs of all faculties in Sant Gadge Baba Amravati University, Amravati to earn their degree
- NC is Non-Credit Course
- Students must select **Any One** of the Major-Elective Courses (T1 to T4) with respective Practical Course in Semester V and **same shall be continued** for Semester VI

- Students must select **Any One** of the SEC-P (P1 to P4) Course in Semester V and Semester VI

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

The Vertical	Type of the Course	Course Code	Course Title	Credits	Workload	Theory/Practical Marks				Theory/Pract (Total) Marks	
						External		Internal		Max.	Min.
						Max.	Min.	Max.	Min.		
Major	Major-T	10725 2	Genomics, Proteomics and Metabolomics	2	2	30	9	20	6	50	20
Major	Major-T	10725 3	Plant Ecology & Conservation Biology	2	2	30	9	20	6	50	20
Major	Major-T	10725 4	Modern Tools and Techniques in Plant Sciences	2	2	30	9	20	6	50	20
Major	Major-P	10725 5	Hands on Omics, Ecology & Modern Techniques	2	4	25	10	25	10	50	20
Major	Major-Elective T1	10725 6	Plant Systematics – 2	2	2	30	9	20	6	50	20
Major	Major-Elective P1	10725 7	Lab-Based Learning of Plant Systematics -2	2	4	25	10	25	10	50	20
OR											
Major	Major-Elective T2	10725 8	Molecular Biology and Genetic Engineering – 2	2	2	30	9	20	6	50	20
Major	Major-Elective P2	10725 9	Lab-Based Learning of Mole.Bio. and Genetic Eng. -2	2	4	25	10	25	10	50	20
OR											
Major	Major-Elective T3	10726 0	Advance Plant Physiology – 2	2	2	30	9	20	6	50	20
Major	Major-Elective P3	10726 1	Lab-Based Learning of Advance Plant Physiology – 2	2	4	25	10	25	10	50	20
OR											
Major	Major-Elective T4	10726 2	Basic and Applied Mycology and Plant Pathology-2	2	2	30	9	20	6	50	20
Major	Major-Elective P4	10726 3	Lab-Based Learning of Basic and Applied Mycology and Plant Pathology-2	2	4	25	10	25	10	50	20

Minor	Minor-T	10726 4	Molecular Biology, Genetic Engineering and Biotechnology	2	2	30	9	20	6	50	20
Minor	Minor-P	10726 5	Experimental Mole. Bio, Genetic Engi. & Biotech.	2	2	30	9	20	6	50	20
VSC	VSC-P	10726 6	Entrepreneurship for Botanists	2	4	-	-	50	20	50	20
CC	Intern/Apprenticeship	10726 7	Botany Lab (Internship / Apprenticeship)	4	8	-	-	50	20	50	20

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

SWAYAM/NPTEL Courses under NEP 2020

Sr. No.	Semester	Course Title	Course Code*	Credits**	Institution	Agency	Enrollment Ends	Link to Enroll
1	I	Indian Traditional Medicinal and Aromatic Plants	AIC23_GE18	2	Govt. College of Pharmacy, Amravati	AICTE	Open	https://onlinecourses.swayam2.ac.in/e-learning/preview/aic23_ge18
2	II	Introduction to Cell Biology	noc26_bt102	3	IISER Pune	NPTEL	17 Aug 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_bt102
3	III	Post Harvest Operations and Processing of Fruits, Vegetables, Spices and Plantation Crop Products	NOC26_AG31	3	IIT Kharagpur	NPTEL	27 Jul 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_ag20
4	IV	Cell and Molecular Biology	NOC26_BT44*	4	IIT Guwahati	NPTEL	27 Jul 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_bt91
5	IV	Awareness on Biosafety Aspects of Genetically Engineered Plants	AIC20_GE07	1–2	Biosafety Capacity Building Project	AICTE	Open	https://onlinecourses.swayam2.ac.in/e-learning/preview/aic20_ge07
6	V	Genetic Engineering: Theory and Application	NOC26_BT43*	3	IIT Guwahati	NPTEL	27 Jul 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_bt93
7	VI	Plant Cell Bioprocessing	NOC26_BT51*	2	IIT Madras	NPTEL	27 Jul 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_bt67

* 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 Botany 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.