



**DR. V. S. KRISHNA GOVT. DEGREE COLLEGE (A)
VISAKHAPATNAM**

DEPARTMENT OF BOTANY

PROPOSED SYLLABUS FOR B.Sc BOTANY HONOURS

(SINGLE MAJOR)

IN UNDERGRADUATE DEGREE PROGRAMME

UNDER AUTONOMY

2023 - 2024

**BOARD OF STUDIES
IN
B.Sc BOTANY 2023-2024**

DEPARTMENT OF BOTANY

**SYLLABUS FOR B.Sc BOTANY HONOURS
(SINGLE MAJOR)**

Approved in B.O.S for the Academic Year 2023-2024

(Dt : 11 - 09 - 2023)



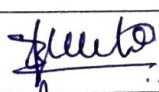

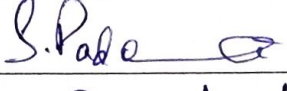
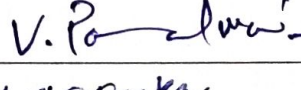
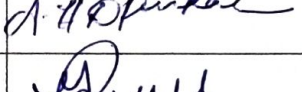
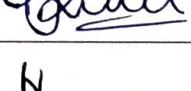
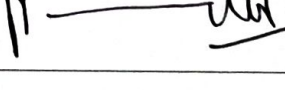

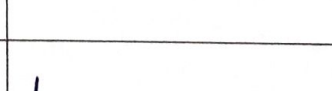


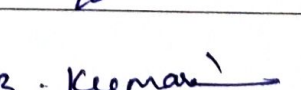
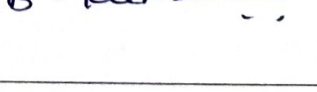
Dr.V.S.Krishna Govt. Degree College (Autonomous),
(Accredited with 'A' Grade by NAAC)
Visakhapatnam
530013, ANDHRA PRADESH

Dr.V.S.Krishna Govt. Degree College (Autonomous), Visakhapatnam
Department of Botany

BOS Meeting

The Dept of Botany has conducted BOS meeting on 11-09-2023 at 10.30 AM with Dr. B. Chandramouli, Lecturer in-Charge in the chair along with the following members to discuss the changes in curriculum of B.Sc. Botany, single major subject for I and II semesters only. I to II semesters

The curriculum designed and approved by BOS committee and the changes in curriculum will be implemented from 2023-24 academic year onwards.

MEMBER	NAME & DESIGNATION	SIGNATURE
Head of the Department (Chairman)	Dr. B. Chandramouli	
Department Faculty members	Dr. P. Swamy Naidu	
	Dr. S. Padmavathi	
	Dr.V. Padmaja	
	Dr. AHD Pushpalatha	
	Smt. GRNS Sujatha	
Subject Expert (University Nominee)	Prof. S.B. Padal Department of Botany, AU Visakhapatnam	
Subject Expert (from outside the parent university)	Dr. A. Srinivasa Rao, HOD Dept of Botany Govt. College (A), Rajahmundry Adikavi Nannayya University	
Subject Expert (from outside the parent university)	Sri. KVGK. Vara Prasad HOD, Dept. of Botany Govt. Degree College (A),Tuni Adikavi Nannayya University	
Industrial Expert	Dr.U.V Ravi Sankar, Director MicGene Lab, Visakhapatnam	
Member from Alumni	Smt B.Kumari Lecturer in Botany Govt Degree College (W), Marripalem	
Coordinator, Academic Council	Dr. D. Shravan Kumar Reader In Physics	
Chairperson, Academic Council	Dr. I. Vijaya Babu Principal	

PRINCIPAL

Dr. V.S.Krishna Govt. Degree College (A)
Visakhapatnam-530013

DR. V.S KRISHNA GOVT. DEGREE COLLEGE (A), VISAKHAPATNAM
DEPARTMENT OF BOTANY

Programmes: For B.Sc (Botany) w.e.f. 2023-24 Academic year onwards

Objectives of the Programmes of B.S.c Botany Single major

1. To create awareness on all fundamental aspects of biological sciences with an emphasis on basic and applied aspects of Botany for the beginners
2. To enhance the knowledge about diversity in all cryptogams (spore plants)
3. To create an awareness on economic importance and ecological significance of Algae, Fungi, Lichens , Bryophytes and Pteridophytes .
4. To study structure of viruses and bacteria; diagnosis and control methods of plant diseases caused by these pathogens
5. To study various plant tissues and tissue systems and understanding anatomy of the seed plants with emphasis on anomalous secondary growth in different plants
6. To create awareness on classification on flowering plants
7. To study the morphology and floral characters of some flowering plants
8. To know the importance of flowering plants around the habitats
9. To increase the ability of analysis of plant species with classification
10. To create awareness on economic importance of flowering plants
11. To study and understands various fundamental aspects in Embryology
12. To study the growth and development patterns of plant
13. To study and understands different Physiological phenomenons and functions in Plants
14. To understand the biochemical pathways such as Photosynthesis, Respiration
15. To study the basic concepts of Ecology, Population and Community
16. To study the functions and role of cell and cell organelles
17. To understand the concept of gene, Laws of Heredity and Hybridization.
18. To study the geographical distribution of plants
19. To study and understand medicinal values of different medicinal plants

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DEPARTMENT OF BOTANY

Students graduating with a B.SC should be able to

POs	Programme Outcomes
PO1	Critical Thinking: Ability to take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO2	Effective Communication: Ability to speak, read, write, and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media, and technology.
PO3	Social Interaction: Ability to elicit views of others, mediate disagreements and help reach conclusions in group settings.
PO4	Effective Citizenship: Ability to demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
PO5	Ethics: Ability to recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO6	Environment and Sustainability: Ability to understand the issues of environmental contexts and sustainable Development.
PO7	Employability skills: Equipping graduates with the essential abilities and knowledge to excel in their choosen careers.
PO8	Entrepreneurship skills: Seeks to empower students with the competencies needed to be successful entrepreneurs, enabling them to launch, operate, and innovate in their own businesses or entrepreneurial ventures.
PO9	Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

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Program Specific Outcomes (PSOs)

PSOs	Program Specific Outcomes (PSO)
PSO1	Analyze the relationships among animals, plants and microbes
PSO2.	Understand the nature and basic concepts of anatomy, embryology and Plant Ecology.
PSO3	Understand structure of Cell and functions of cell organelles. Plant breeding ; Biochemistry , Plant Physiology and Plant Biotechnology; Economic Botany.
PSO4	Undertand the concept gene, Heridity and Hybridization
PSO5	Know and understand different Physiological functions and Biochemical pathways in Plants and cell.
PSO6	Understand, identify and utilize different Economically useful plants in life
PSO7	Perform procedures as per laboratory standards in the areas of plant Anatomy, Embryology, Ecology, Cell Biology, Plant Breeding, Plant Physiology and Plant Biotechnology,

DR. V.S KRISHNA GOVT. DEGREE COLLEGE (A), VISAKHAPATNAM
(ACCREDITED WITH "A" GRADE BY NAAC)
B.Sc HONOURS DEGREE IN BOTANY (SINGLE MAJOR)
(With effect from AY 2023-24 onwards)

Course structure

Year	Semester	Course	Title	No. Hrs./ Week	No.of Credits	Course code
I	I	1	Introduction to Classical Biology	5	4	23BSBM11
		2	Introduction to Applied Biology	5	4	23BSBM12
	II	3	Non-vascular Plants –(T)	3	3	
			Non-vascular Plants –(P)	2	1	
		4	Origin of Life and Diversity of Microbes –(T)	3	3	
			Origin of Life and Diversity of Microbes –(P)	2	1	
I I	III	5	Vascular Plants –(T)	3	3	
			Vascular Plants –(P)	2	1	
		6	Plant Pathology and Plant Diseases–(T)	3	3	
			Plant Pathology and Plant Diseases –(P)	2	1	
		7	Plant Breeding–(T)	3	3	
			Plant Breeding –(P)	2	1	
		8	Plant Biotechnology–(T)	3	3	
			Plant Biotechnology–(P)	2	1	
	IV	9	Anatomy and Embryology of Angiosperms–(T)	3	3	
			Anatomy and Embryology of Angiosperms–(P)	2	1	
		10	Plant Ecology, Biodiversity andPhytogeography–(T)	3	3	
			Plant Ecology, Biodiversity andPhytogeography–(P)	2	1	
		11	Plant Resources and Utilization–(T)	3	3	
			Plant Resources and Utilization–(P)	2	1	
III	V	12	Cell Biology and Genetics–(T)	3	3	
			Cell Biology and Genetics–(P)	2	1	
		13	Plant Physiology and Metabolism–(T)	3	3	
			Plant Physiology and Metabolism–(P)	2	1	
		14 A	Organic Farming–(T)	3	3	
			Organic Farming–(P)	2	1	
		15 A	Mushroom Culture Technology–(T)	3	3	
			Mushroom Culture Technology–(P)	2	1	

Dr. V.S. KRISHNA GOVERNMENT DEGREE COLLEGE (A), VISAKHAPATNAM
DEPARTMENT OF BOTANY
(BSc Botany Single Major with effect from 2023-24 for BSc (Botany) Academic Year)

The Board of Studies in Botany for the academic year 2023 - 2024 convened on 11-09- 2023 in Dept. of Botany, Dr. V.S Krishna Govt.Degree College (A), Visakhapatnam.

Agenda:

1. To discuss and approve the Botany Single Major syllabus for I, II, III, IV & V semesters changed as per NEP 2020 policy and CBCS and semester system w.e.f 2023-2024.
2. Scheme of examination for Both Internal and external examinations
3. Model question paper for theory and practical of all papers
4. To discuss and approve the weightage to be given to each paper
5. Panel of paper setters and examiners
6. Other academic activities of the Department
7. Any other suggestions with permission of Chairperson

RESOLUTIONS:

1. Resolved to approve the syllabus for the ,I, II, III,IV and V semesters from 2023-24 onwards as appended herewith for B.Sc Botany Single Major.
2. Resolved to approve the syllabus for both theory and Practical the I,II,III,IV and V semesters from 2023-24 onwards as appended herewith
3. As per the UGC Guidelines 4 years under graduation course Started in B.Sc. with Multiple entries & exits. The student can join in I,III, IV semesters and if they want to exit it will be possible in II,IV,VI semesters
4. Resolved to follow the following pattern for Examinations
5. The syllabus of each paper is divided into two parts. Each paper has 60% External (CIA) and 40% Internal Examinations for I, II, III, IV, and V Semesters.
5. No Internal Examination /Semester Examination be conducted separately for the absentees
 - a) Absentees will be awarded Zero marks
 - b) The minimum pass mark for the External Examination is 21. Candidate should get a total of 35 marks in Internal & External Examination put together for I, II, III ,IV, & V semesters.
 - c) The pattern of semester Examination and practical for II , III,IV, and V, semesters is herewith appended
 - d) Practical Examination will be conducted at the end of each semester
6. Resolved to approve the Model question papers for I, II, III, IV and V Semesters is here with appended
7. Resolved to approve the panel of paper setters and Examiners as appended herewith
8. Resolved to recommend a guest faculty in Botany which is a dire need for smooth running of the course classes.
9. Resolved to take 14A and 15A papers in V Semester for III Year.

**Dr. V.S. KRISHNA GOVERNMENT DEGREE COLLEGE (A),
VISAKHAPATNAM**

(Affiliated to Andhra University)

**MINUTES OF THE BOARD OF STUDIES MEETING
2023-2024**

The Board of Studies meeting on B.Sc Botany Single Major syllabus was conducted at Botany Department under the chairmanship of Dr. B. Chandramouli, Lecturer and In-Charge, Dept. of Botany . The BOS Committee includes Prof. S.B. Padal, University Nominee, AU, Visakhapatnam, Dr. A. Srinivasa Rao, Subject Expert, HOD, Dept. of Botany, Govt. College (A), Rajahmundry, Sri KVGK Vara Prasad, Subject Expert, HOD, Dept. of Botany, GOvt. Degree College (A), Tuni, Dr. UV Ravi Sankar, Industrial Expert, Director, MICGene Lab, Visakhapatnam, Smt. B. Kumari, Member from Alumni, Lecturer in Botany, Govt. Degree College (W), Marripalem, Dr. D. Shravan Kumar, Coordinator, Academic Council, Reader in Physics, and Dr. I. Vijaya Babu, Chairperson, Academic Council and Principal of Dr. VS. Krishna Govt. Degree College (A), Visakhapatnam, were met, discussed and resolved the following.

RESOLUTIONS

1. It is unanimously resolved to follow the B.Sc Botany Major Honours with Research Syllabus designed for I to V Semesters from 2023-24 onwards.
2. It is unanimously resolved to authorize the college to follow the proposed pattern of question papers in each Semester.
3. It is unanimously resolved to approve the panel of question paper setters.
4. It is resolved to implement 60% external and 40% internal assessment pattern for I to V Semesters.
5. It is unanimously resolved to distribute 40 marks for the internal assessment among Mid examinations, Assignment/Projects and Attendance.
6. It is resolved to approve and ratify the following courses w.e.f 2023-24 for the students joining in BSc Botany Honours with Research Program.

S. No.	Y e a r	Seme ster	Major	Major Course Nos	Minor	MDCs	SECs	VAC	Add-on Course
1	I	1	General Major Courses	1	-	Indian History	Leadership skills		
2				2			Communicati on skills		
3		2	Botany Honour s	3	Zoology 1		Marketing Skills		
4				4			Digital Literacy		
5	II	3		5	Zoology 2	Public Admini- stration	ICT		Manures
6				6					
7				7					
8				8					
9	4	9		Zoology 3	Funda- mentals of Economi cs	Tourism Guidance			
10		10		Zoology 4					
11		11							
12	III	5		12	Zoology 5	-	-	Environ- mental Education	Mangroves
13				13					
14				14A	Zoology 6				
15									
16				15A					
17									
18	6	APPRENTICESHIP							

a. Multi-Disciplinary Courses –

Resolved to offer and approve three Multi-Disciplinary Courses (MDCs) – One in Semester-1 i.e., Indian History, One in Semester – 3 (Public Administration) and One course in Semester – 4 (Fundamentals of Economics) for the students admitted during 2023-34 as ratified by the concerned departments.

Semester	No. of MDCs	Name of the LSC
1	1	Indian History
3	1	Public Administration
4	1	Fundamentals of Economics

8. Skill Enhancement Courses –

Resolved to offer and approve Six Skill Enhancement Courses – Two in Semester-1 i.e., Leadership Skills & Communication Skills, Two in II Semester i.e. Marketing Skills and Digital Literacy, One in Semester – 3 i.e. ICT and One in Semester-4 i.e. Tourism Guidance for the students admitted during 2023-24 as ratified by the concerned departments.

Semester	No. of SECs	Name of the SECs
1	2	Leadership skills & Communication Skills
2	2	Marketing Skills and Digital Literacy
3	1	ICT
4	1	Tourism Guidance

9. Value-added Courses –

Resolved to offer, approve and ratify the syllabus, model paper and blue-print of the Common Value-added course on “**Environmental Education**” in V Semester for the students admitted during 2023-24 as given by the AP State Council of Higher Education.

10. Add-on Courses –

Resolved to approve and ratify the syllabus, model paper and blue-print of the Add-on courses of Manures and a certificate course of Mangroves offered by the Department of Botany for the students admitted during 2023-24.

11. Internships & Apprenticeships –

Resolved to approve the implementation of first internship i.e. “Community Service Project” during the interim period (summer holidays) between first and second years, a second internship for 8 weeks during the interim period between second and third year and the third internship i.e. apprenticeship during the final year where students have to get trained in job skills related to the skill enhancement course they have chosen and submit a project. It is further resolved that for the 3rd internship, only 50% of the students shall be sent to industries while the remaining 50% shall be in the college being taught by the teachers and vice versa.

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**Blue Print for all semester End Examinations and Question paper setting for I , II & III Years
(w.e.f. 2023-24 Academic Year)**

Learning level wise Weightage				
Bloom's Taxonomy level	Weightage	Marks	Essay type	Short answer type
Knowledge/ Remember	35%	35	2	3
Understanding/ Comprehension	25%	25	2	1
Application/	20%	20	1	2
Analysis	15%	15	1	1
Synthesis/ Evaluate	5%	5		1
Total	100	50 (including choice 100 M)	3 availing internal choice	4 out of 8 questions

S.No	Type of Questions	To be given in the Question paper			To be Answered		
		No. of Questions	Marks Allotted to each Question	Total marks	No. of Questions	Marks Allotted to each Question	Total marks
1	<u>SECTION-A</u> SHORT QUESTIONS (SQ)	08	04	32	5	4	20
2	<u>SECTION-B</u> ESSAY QUESTIONS (EQ)	10	8	80	5	8	40
Total Questions & Total Marks =		18	-	112	10	-	60

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**DEPARTMENT OF BOTANY
LIST OF SUBJECT EXPERTS AND PAPER SETTERS OF BOTANY**

S.No	Name of the Lecturer	Address
1	Dr. NSN Swami	Govt. Degree College, Amadalavalasa, Srikakulam
2	Dr. A. Srinivasa Rao	Govt. College (A), Rajahmundry, Adikavi Nannayya University
3	Sri. KVGK. Vara Prasad	Govt. Degree College, (A) Tuni
4	Dr. G. Jyothirmayee	Lecturer in Botany & HOD, SRVVSJB Maharani College, Peddapuram, Kakinada Dist.
5	Dr. Sulakshna	Lecturer in Botany, ASD GDC (W), Kakinada
6	Smt S. Rudrama Rani	Govt. Degree College (W), Srikakulam