Shri Sangameshwar Education Society's

Sangameshwar College, Solapur [Autonomous]

(Affiliated to PunyashlokAhilyadeviHolkar Solapur University, Solapur)

Kannada Linguistic Minority Institute

NAAC Accredited with 'A' Grade (III Cycle CGPA 3.39)

Academic Council 1(6)
2nd July, 2020

UG Science Programme: B.Sc.-I To be implemented from A.Y. 2020-2021

System: Choice Based Credit System (CBCS) with SGPA and CGPA

B.O.S. in*: **Botany**

Structure and Examination for: Discipline Specific Core Courses (DSC-A and DSC-B)

Table-1

Semester	Course		Teaching Scheme/week			
			Course Code	Hours	Lectures	Credits
I	DSC-A	Theory-I: Microbiology & Phycology	2031112	4	5	4
		Theory-II: Fungi and Archegoniate	2031113			
		Practical-I: Botany Practical	2031225	3.2	4	2
II	DSC-B	Theory-I: Plant Ecology	2031212	4	5	4
		Theory-II: Taxonomy of Angiosperms	2031213			
		Practical-I: Botany Practical	2031225	3.2	4	2

Table-2

Semester	Course		EXAMINATION Marks			Credits
			CA	SEE	Total	
I	DSC-A	Theory-I: Microbiology & Phycology	15	35	50	4
		Theory-II: Fungi and Archegoniate	15	35	50	
II	DSC-B	Theory-I: Plant Ecology	15	35	50	4
		Theory-II: Taxonomy of Angiosperms	15	35	50	

	DSC-A & DSC-B	Practical-I: Botany Practical	30	70	100	4

CA: Continuous Assessment SE: Semester End

Note: -

The above structure (Table-1 and Table-2) is for Sem-I and Sem-II of the undergraduate B.Sc.-I * /B.S.Ecs.-I /B.C.A.-I programmes under science faculty.

* B.Sc.-I Select any four DSC form Chemistry /Physics /Mathematics /Statistics /Electronics /Botany /Zoology /Geography /Psychology.

DSC: Discipline Specific Core Course **AECC:** Ability Enhancement Compulsory Course

Passing in each course is compulsory including Democracy. course.

SGPA/CGPA and Total Marks will be calculated excluding AECC and Democracy. courses.

Compulsory Course:

DEMOCRACY	2000232	DEMOCRACY ELECTIONS AND GOVERNANCE
PHY EDU	2000233	PHYSICAL EDUCATION

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Syllabus for: Discipline Specific Core Courses(DSC-A and DSC-B)

SEM-I

DSC-A Theory-I BOTANY-I (2031112) **Title: Microbiology & Phycology** **(Credit:2 & Marks:50)**		**Hours30**
Unit1	Contents : **Microbes:-** Introductionofmicrobiology **Viruses:** General characters, structure, classification(plant viruses) and economic importance of viruses. **Bacteria:** General characters of bacteria,structure and Economic importance. **Mycoplasma:** General characters, Structure,classification and significance.	7/8

Unit2	**Phycology** Introduction, general characters and classification of algae (As per Smith-1955) up to class. Economic importance of Algae	7/8
Unit3	**Cyanophyta** General Characters Study of ***Nostoc***– Occurrence, Classification, thallus structure and reproduction. (excluding developmental stages)	7/8
Unit4	**Chlorophyta** General Characters Study of ***Spirogyra*** - Occurrence, Classification, thallus structure and reproduction (excluding developmental stages)	7/8
Course Outcome: • The student can understand the basic concept of microbiology • The student can understand in detail about the viruses, diversity of bacteria and about theMycoplasma • The student can understand importance of algae • The student can understand in detail about the division Cyanophyta along with its one detailed example of*Nostoc* • The student can understand in detail about the division chlorophyta along with its one detailed example of*Spirogyra*		

Academic Council 1(6) **2nd July, 2020** **DSC-A Theory-II BOTANY-II (2031113)** **Title:Fungi and Archegoniate** **(Credit:2 & Marks:50)**		**Hours30**
Unit 1	**Fungi** General characters, Nutrition and classification of fungi up to class (as perAinsworth). Economic importance of Fungi Study of *Mucor*- Occurrence, Thallusorganisation, classification and Life cycle. (excluding developmental stages) Study of Yeast-Occurrence, Thallus organization, classification and life cycle. (excluding developmental stages)	7/8
Unit 2	Contents :**Archegoniate** Introduction	7/8

	General characters.	
Unit 3	Contents : **Bryophytes** General characters, and Classification (as per G. M.Smith) Study of *Riccia*- Occurrence, classification, thallusstructure (External and Internal) and reproduction (Excluding Economic importance of Bryophytes	7/8
Unit 4	Contents : **Pteridophytes** General characters and classification up to class (as per G. M.Smith) Study of *Sellaginella*- Occurrence, classification, morphology of sporophyte, anatomy (stem) and reproduction (Excluding development).Economic importance of Pteridophyte	7/8
Unit 5	**Gymnosperms** General characters and classification (As per Sporne) Study of *Cycas*- Occurrence, classification, morphology(Sporophyte, Corolloid root), anatomy of leaflet and reproduction of *Cycas*(Structure of male and female reproductive structures excluding development) Economic importance of Gymnosperms	

Outcomes :-

The student can understand about the general introduction of truefungi.

The student can understand about division of Zygomycotina.

The student can understand about the division of Ascomycotina

The student get an detailed idea about Archegoniate

The student can understand about the Bryophytes and life cycle of ***Riccia***with its economicimportance.

The student can understand about the Pteridophytes and life cycle of ***Selaginella***with its economic importance.

The student can understand about the Gymnosperms and life cycle of ***Cycas***with its economicimportance.

SEM-II

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DSC-B Theory-I BOTANY-III (2031212)

Title: Plant Ecology

(Credit:2 & Marks:50)

Hours30

Unit 1	**Introduction** (05Lectures) Climatic factor- Light, Temperature, Humidity, Wind &Rainfall. Edaphic factor- Soil formation, Soil	7/8

	profile, Classification & Chemical properties of soil.	
Unit 2	**EcologicalAdaptation** (8Lectures) Introduction. Hydric Adaptation. Xeric Adaptation.	7/8
Unit 3	**Plantcommunities** (8Lectures) Introduction. Forms & structure ofcommunity. Classification. Qualitative and quantitative characters of community	7/8
Unit 4	**Ecosystem** (8Lectures) Introduction. Concept &type. Components ofecosystem. Ecologicalpyramids. Food chain and food webs.	7/8
Unit 5	**Ecologicalsuccession** (6Lectures) Introduction. Concept &process. Hydrosereand Xerosere.	

Outcome: The student can understand about the Climatic and Edaphic factors of environment.

Outcome: The student can understand about the Ecological adaptations in plants.

Outcome: The student can understand about the Plant communities

Outcome: The student can understand about the concepts of ecology

Outcome: The student can understand about the Ecological succession

Academic Council 1(6) **2nd July, 2020** **DSC-B Theory-II BOTANY-IV (2031213)** **Title:Taxonomy of Angiosperms** **(Credit:2 & Marks:50)**	**Hours 30**

Unit 1	Contents :Taxonomy of angiosperm **1.1.** Introduction **1.2.** Aims and Principles of Taxonomy	7/8
Unit 2	Contents : **Classification** **2.1.** Types of classification: Artificial, Natural and Phylogenetic. **2.2** Bentham and Hooker system of classification **2.3** Merits and demerits	7/8
Unit 3	Contents : **Identification and nomenclature** **3.1** Identification of plants **3.2** Nomenclature, Binomial nomenclature of plants **3.3** Principles of ICBN.	7/8
Unit 4	Contents : **Herbarium and Botanical Garden** **4.1** Herbarium- Steps in preparation and significance. **4.2** BotanicalgardensofIndia-SirJ.C.Bose BotanicalGarden, Calcutta & Lead Botanical Garden of ShivajiUniversity Kolhapur.	7/8
Unit 5	**Study of Angiosperms families** Systematic position, Morphologycal& Distinguishing characters with economic importance of following families: a) Caesalpiniaceae b)Solanaceae b) Nyctaginaceae d)Liliaceae	

Course Outcome:

- The student can understand about importance of taxonomy
- The student can understand about classification systems in taxonomy
- The student can understand different methods of classification and rules of nomenclature
- The student can understand technique and botanical gardens in India
- The student can understand detailed identifying characters of family

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DSC-A&DSC-B BOTANY PRACTICAL-I (2031225)

(Credit:4, Hours:60& Marks:100)

Experiment	Title
1	Study of dissecting and compound microscope.
2	Electron micrographs/Models of viruses - T-Phage and TMV (photographs/models).
3	Gram staining (demonstration) and forms of Bacteria (permanent slides/photographs).
4	Identification of Algae (*Volvox*, *Sargassum,Gracillaria,*)
5	Study of*Nostoc.*
6	Study of*Spirogyra.*
7	Identification of Fungi (*Albugo, Penicilium,Agaricus,*)
8	Study of*Mucor.*
9	Study ofYeast
10	Identification of Archegoniates (*Marchantia, Adantium,Pinus*)
11	Study of*Riccia.*
12	Study of *Selaginella*- Morphology of sporophyte and anatomy of stem,Strobilus.
13	Study of *Cycas*- Morphology of sporophyte and anatomy ofleaflet.
14	Study of *Cycas*- Reproductive structure: male cone, microsporophyll, microspore and megasporophyll, L. S. of ovule (permanentslide).
	Study of plantfamilies:
15	a) Caesalpiniaceae
16	b) Solanaceae.
17	c) Nyctaginaceae
18	d) Liliaceae
19	Study of soil P^H by Universal indicator/pH paper/pH meter.
20	Study of Water holding capacity of differentsoil.
21	Study of meteorological instruments (anythree).
22	Determination of Density and Frequency of plants by quadratmethod.
23	Ecological adaptations of Hydrophytes (*Hydrilla*, *Eichhornia*and*Typha*).
24	Ecological adaptations of Xerophytes (*Nerium*and*Aloe*).

Teaching-Learning Equipments/Tools/Methods/etc:

Teaching methodology :-

Lecture method

Demonstration method

Audio visual method

Equipments: - All related Equipmentsof different practical

List of Books:

	Title	Authors	Publisher
1	College Botany	Das dattaGanguly	
2	Introductory Phycology	Kumar.H.D(1999)	
3	Pteridophyta.	Vashistha.P.C.,Sinha.A.K, Kumar.A.(2010)	
4	Ecology and Environment.	Sharma.P.D.(2010)	
5	TaxonomyofAngiosperm	R Pandey	

Signature :
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Chairman
BOS in Botany