

**Proposed Curriculum For B. Sc.
(Honours) Botany and B. Sc. Program
with Botany**

**Submitted to
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Under

**Choice Based Credit System
(For Session 2017-2018)**

UGCBCS 4th Semester Honours (Session: 2020-2021; EVEN SEMESTER; January to July)

Core Course – IX (Practical) (Marks 15)

HBOT-CCP-409

Ecology -

1. Determination of dissolved oxygen of water samples from polluted and unpolluted sources.
2. (a). Study of morphological adaptations of hydrophytes and xerophytes (four each).
(b). Study of biotic interactions of the following: Stem parasite (*Cuscuta*), Root parasite (*Orobancha*) Epiphytes.
3. Determination of minimal quadrat size for the study of herbaceous vegetation in the college campus, by species area curve method (species to be listed).
4. Quantitative analysis of herbaceous vegetation in the college campus for frequency and comparison with Raunkiaer's frequency distribution law.
5. Quantitative analysis of herbaceous vegetation for density and abundance in the college campus.
6. Field visit to familiarise students with ecology of different sites.

UGCBCS 6th Semester Honours (Session: 2020-2021; EVEN SEMESTER; January to July)

Ethnobotany

(Credits: Theory 4, Practical 2)

Theory- 25 Marks

1: Ethnobotany

Introduction, concept, scope and objectives; Ethnobotany as an interdisciplinary science. The relevance of ethnobotany in the present context; Major and minor ethnic groups or Tribals of India, and their life styles. Plants used by the tribals: a) Food plants b) intoxicants and beverages c) Resins and oils and miscellaneous uses.

2: Methodology of Ethnobotanical studies

a) Field work b) Herbarium c) Ancient Literature d) Archaeological findings e) temples and sacred places.

3: Role of ethnobotany in modern Medicine

Medico- ethnobotanical sources in India; Significance of the following plants in ethnobotanical practices (along with their habitat and morphology) a) *Azadirachta indica* b) *Ocimum sanctum*

c) *Vitex negundo*. d) *Gloriosa superba* e) *Tribulus terrestris* f) *Pongamia pinnata* g) *Cassia auriculata* h) *Indigofera tinctoria*. Role of ethnobotany in modern medicine with special example *Rauwolfia serpentina*, *Trichopus zeylanicus*, *Artemisia*, *Withania*.

Role of ethnic groups in conservation of plant genetic resources. Endangered taxa and forest management (participatory forest management).

4: Ethnobotany and legal aspects

Ethnobotany as a tool to protect interests of ethnic groups. Sharing of wealth concept with few

examples from India. Biopiracy, Intellectual Property Rights and Traditional Knowledge.

5. Ethnobotany in the Eastern Himalaya and North Bengal.

Practical-15 Marks

1. Identification of drug yielding plants
2. Organoleptic studies of locally available ethnomedicinal plants
3. A visit to local ethnic community to record ethnobotanical information.

UGCBCS 1st Semester Honours (Session: 2020-2021; ODD SEMESTER; July to December)

Core Course – II (Practical) (Marks 15)

HBOT-CCP-102 (15)

Fungi/ Mycology -

1. Study of the following genera: *Rhizopus*, *Ascobolus*, *Agaricus* (gill) and *Polyporus*.
2. Identification of all the macroscopic and microscopic genera included in the theoretical syllabus. (It should also include *Alternaria* and *Fusarium* of Deuteromycetes).

Phytopathology -

1. Study of the following diseases: White rust, Rust of wheat/*Justicia*, smut of wheat (or any member of Poaceae)
2. Demonstration on isolation and subculturing of pathogen.

[NB. Practicals will also include field study with specimen collection, preservation and their submission with proper documentation. It also includes temporary and where ever necessary permanent slide submission.]

UGCBCS 3rd Semester Honours (Session: 2020-2021; ODD SEMESTER; July to December)

Core Course – VII (Practical)

HBOT-CCP-307 (Marks 15)

Morphology –

1. Morphological study of the plant organs included in the theoretical syllabus (No Submission is required)

Plant Anatomy -

1. Study of the anomalous structures of stems of the following genera: *Bignonia*, *Dracaena*, *Boerhaavia* and *Strychnos*.
2. Microscopic identification of the followings: Primary structure of Sunflower and maize stem and gram and *Canna* root, Bulliform cells, stomatal types, lenticels, raphides (acicular and sphaeraphides), Cystolith.
3. Maceration of wood elements of *Cucurbita* and *Pinus* stem and their microscopic examination.

[NB. Practicals will also include field study with specimen collection, preservation and their submission with proper documentation. It also includes temporary and where ever necessary permanent slide submission.]

UGCBCS 5th Semester Honours (Session: 2020-2021; ODD SEMESTER; July to December)

Microbiology (Practical) Marks-15

1. Study of symptoms of diseases of economically important plants caused by virus.
2. Field record of herbarium sheets of virus infected plants must be submitted
3. Preparation of bacterial media-
 - a) Nutrient agar and nutrient broth
 - b) Preparation of slants and Stab and pouring in Petri-plates.
4. Sub-culturing of bacterial culture.
5. Simple and Gram staining
6. Microscopic examination of bacteria from curd by simple staining.

C- 14: FIELD WORK
(PRACTICAL)

Time: 1 Hour

Full Marks: 50

A. Preparation of a Field Report:**(30 Marks)**

Field Report is to be prepared for an area (C.D. blocks/ P.S/ mouza/ G.P./municipality/drainage basin) on the basis of any particular problem of the selected area of study. Questionnaire/schedule to be prepared for collection of primary data, data collected from the field are to be analysed /processed and represented by suitable methods. Report should contain adequate number of tables, diagrams and maps, photo, complying of anything associated with field report only. Field report is to be authenticated by the concerned supervisor(s) .Participation and preparation of field work is compulsory. The report must follow the basics structure of report writing.

Guidelines for the preparation of the Field Report:

- The Field Work is to be conducted after the completion of the 5th semester examination.
- Participation in the field work is compulsory.
- It may be carried out in a rural or in an urban area or in a drainage basin within the country.
- The Report must contain a certificate from the supervisor(s) that it is a bonafide work prepared by the candidate concerned.
- The Field Report should be of A4 size and hard bound.
- The Report should not exceed 100 pages containing maps and diagrams and must be typed by computer.
- A single page may contain several diagrams/graphs/maps as required for proper presentation of the findings.
- Separate sheets for photographs can be used.
- Tables may be incorporated within the writing portions as per relevance and requirement.
- The Report should be computer written (i.e writing portion only); using MSWord, Times New Roman as the Font type with font size: 12 and doubly spaced singly printed.
- Field Itinerary, Tabulation sheet, all calculations in tabular form and References should be presented in the appendices.
 - Report must follow the basic structure of Research Report Writing

B) Field Viva-Voce:**(10Marks)****C) Continuous Evaluation Internal (6) and Attendance (4)****(10 Marks)****Suggested Readings:**

1. Creswell J., 1994; *Research Design: Qualitative and Quantitative Approaches* Sage Publications.
2. Dikshit, R. D. 2003. *The Art and Science of Geography: Integrated Readings*. Prentice-Hall of India, New Delhi.
3. Evans M., 1988: "Participant Observation: The Researcher as Research Tool" in *Qualitative Methods in Human Geography*, eds. J. Eyles and D. Smith, Polity.
4. Misra, R.P. (2002) *Research Methodology*, Concept Publications, New Delhi.
5. Mukherjee, Neela 1993. *Participatory Rural Appraisal: Methodology and Application*. Concept Pubs. Co., New Delhi.
6. Mukherjee, Neela 2002. *Participatory Learning and Action: with 100 Field Methods*. Concept Pubs. Co., New Delhi
7. Robinson A., 1998: "Thinking Straight and Writing That Way", in *Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences*, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
8. Special Issue on "Doing Fieldwork" *The Geographical Review* 91:1-2 (2001).
9. Stoddard R. H., 1982: *Field Techniques and Research Methods in Geography*, Kendall/Hunt.
12. Wolcott, H. 1995. *The Art of Fieldwork*. Alta Mira Press, Walnut Creek, CA.