

HOLY CROSS COLLEGE, AGARTALA

Department of Botany

Bridge Course For NEP (2020) First Semester Botany

Course Title: Fundamentals of Botany

SESSION 2024-25

From: 22/07/2024 to 30/07/2024

The Department of Botany organized an extensive Bridge Course on “Fundamentals of Botany” for NEP (2020) First Semester Botany (Major) students and NEP (2020) First Semester B.Sc. Life Sciences students from 22/07/2024 to 30/07/2024. This course was strategically conducted before the commencement of first-semester classes to provide a smooth transition from 12th standard to university-level studies. The curriculum was meticulously designed to cover essential concepts from the 12th standard syllabus while introducing prerequisite knowledge required for the B.Sc. in Botany course. And also, to equip students with essential laboratory skills and techniques critical for their academic and research pursuits in the field of botany.

Aim of the Programme

The Bridge Course was designed with the following aims:

1. **Solid Understanding of the Subject:** To provide students with a comprehensive understanding of key concepts and principles, enhancing their academic standards and performance.
2. **Boosting Self-Confidence:** To gradually increase students' self-confidence, enabling them to face exams and adapt to the new syllabus and pattern of university education.
3. **Integration of Theory and Practice:** The course combined theoretical lessons with hands-on practical sessions to reinforce learning and provide practical experience.

Duration

The classes commenced on 22/07/2024 and continued until 30/07/2024 with daily lectures.

Resources Required

1. **Laboratory Equipment:** Microscopes, dissection tools, chromatography kits, soil testing equipment, and basic lab supplies.
2. **Field Work Materials:** Collection bags, plant identification guides, notebooks, and suitable outdoor attire.
3. **Reading Materials:** Introductory Botany textbooks, scientific articles, and field guides.

Faculty Involved

1. **Course Coordinator:**
 - a. Dr. Debasree Lodh, HOD, Department of Botany, HCC
2. **Course Teachers:**
 - a. Dr. Dipanwita Chaudhuri Sil, Assistant Professor, Department of Botany
 - b. Dr. Debasree Lodh, HOD, Department of Botany
 - c. Dr. Somnath Kar, Assistant Professor, Department of Botany
 - d. Dr. Sudipta Sinha, Assistant Professor, Department of Botany

Overview on Course activity conducted for 7 days

Day 1: Introduction to Course Structure

Course Structure Overview

During the 1-day bridge course, students were provided with a detailed introduction to the B.Sc in Botany program. The session outlined the course structure, including core subjects such as Plant Physiology, Genetics, Ecology, and Taxonomy, as well as elective options that allow students to tailor their studies according to their interests. The structure was explained in terms of year-by-year progression, highlighting how foundational courses build the basis for more specialized topics in later years. This overview helped students understand the comprehensive scope of their Botany studies.

Credit and Mark Distribution

The course also covered the credit and mark distribution system used in the B.Sc program according to NEP (2020). Students learned how credits are assigned to different courses based on their workload and importance. The grading system was explained, detailing how marks are allocated across assignments, exams, practicals and projects. The importance of maintaining a good academic standing throughout the program was emphasized, helping students to understand how their overall performance will be evaluated.

Scheme of Theory and Practical Examinations

In addition to understanding the course structure, students were introduced to the scheme of theory and practical examinations. The session explained how theoretical knowledge is assessed through written exams, while practical skills are evaluated in laboratory settings. Students were briefed on the balance between theory and practical, with an emphasis on the importance of both for a well-rounded education in Botany. The examination formats, such as multiple-choice questions, short answers, and lab reports, were also discussed.

Introduction to Botany

Botany's Significance and Career Paths

On the first day, the course began with an introduction to Botany, emphasizing its importance in various fields such as agriculture, medicine, environmental science, and biotechnology. The instructor highlighted how the study of plants is critical for addressing global challenges like food security, climate change, and biodiversity conservation. Students were introduced to various career paths in Botany, including research, teaching, environmental consultancy, and roles in the pharmaceutical and agricultural industries. This session laid the foundation for understanding the relevance of Botany in everyday life and its potential as a professional field.

Introduction to Plant Diversity and Major Branches of Botany

The second day focused on plant diversity and the major branches of Botany. Students were introduced to the vast array of plant life, from microscopic algae to towering trees. The session covered the major groups of plants—Algae, Bryophytes, Pteridophytes, Gymnosperms, and Angiosperms—highlighting their unique characteristics and evolutionary significance. The course also introduced students to the different branches of Botany, including plant physiology, taxonomy, ecology, and molecular biology. This overview helped students appreciate the complexity and diversity of plant life and the various sub-disciplines within Botany.

Day 2: Plant Classification

The third day was dedicated to plant classification, a crucial aspect of understanding plant diversity. Students explored the key plant groups in more detail:

- **Algae:** Simple, photosynthetic organisms found in aquatic environments.
- **Bryophytes:** Non-vascular plants, including mosses and liverworts.
- **Pteridophytes:** Vascular plants that reproduce via spores, such as ferns.
- **Gymnosperms:** Seed-producing plants that do not form flowers, like conifers.
- **Angiosperms:** Flowering plants that produce seeds enclosed in fruit.

Students learned the basic criteria used for classifying plants and the evolutionary relationships between different groups. This session provided a solid understanding of how plants are categorized and the significance of each group in the plant kingdom.

Day 3: Plant Anatomy

On the fourth day, the focus shifted to plant anatomy, examining the structure and function of various plant organs:

- **Roots:** Their role in anchoring the plant and absorbing water and nutrients.
- **Stems:** Support structures that transport nutrients and water between roots and leaves.
- **Leaves:** The primary site of photosynthesis, adapted to capture sunlight efficiently.
- **Flowers:** Reproductive structures that facilitate pollination and seed production.

Students also explored the adaptations of these organs to different environments, such as xerophytes (plants adapted to dry environments) and hydrophytes (plants adapted to aquatic environments). Understanding plant anatomy helped students grasp how different plant parts contribute to the overall survival and reproduction of the plant.

Day 4: Plant Ecology, Conservation, and Sustainability

The course was continued in online mode from the fourth day covered. Discussion on plant ecology and the importance of conservation and sustainability. Students learned about the various adaptations plants have developed to survive in different ecosystems, from deserts to rainforests. The session also discussed plant interactions with other organisms, such as pollinators, herbivores, and competitors, and the role of plants in maintaining ecological balance.

By the end of 4 days, students had a strong foundation in the basics of plant science, preparing them for more advanced studies in the field.

Day 5: Introduction to Practical Botany

Next two days of the bridge course were focused on Practical Botany.

Microscopy Basics

The day began with an introduction to microscopy, a fundamental tool in Botany. The session covered the importance of microscopy in studying plant cells, tissues, and microorganisms. Students were introduced to the different types of microscopes, including light and electron microscopes, and learned about their applications in botanical research.

Hands-on Activity: Preparing and Observing Plant Cells and Tissues

Students participated in a hands-on activity where they prepared slides of plant cells and tissues. They learned the techniques of staining, mounting, and observing specimens under a microscope. The practical session focused on identifying different cellular structures such as cell walls, chloroplasts, and vacuoles. This activity provided students with essential skills in microscopic observation, enhancing their understanding of plant anatomy and physiology.

Lab Safety

Following the microscopy session, the course emphasized the importance of lab safety. Students were taught the proper handling and care of instruments, including microscopes, glassware, and chemical reagents. The instructor provided guidelines on how to maintain a safe and organized laboratory environment, highlighting the significance of personal protective equipment (PPE) and proper waste disposal methods. This session ensured that students are well-prepared to conduct future experiments safely and efficiently.

Day 6: Herbarium Preparation, Field Visit Preparation and Fieldwork

Herbarium Preparation

The final session of the day focused on herbarium preparation, an essential practice in Botany for the preservation and study of plant specimens. Students learned how to properly use plant specimens and

herbarium sheets for identification and classification purposes. The session covered the steps involved in preparing herbarium sheets, including pressing, drying, mounting and labelling plant samples. This activity reinforced their understanding of plant identification and taxonomy, while also emphasizing the importance of accurate specimen preservation for future reference.

Concept of Field Visit/Botanical Excursion

The sixth day of the course was dedicated to fieldwork, beginning with a session on planning for a botanical excursion. Students were introduced to the concept of field visits in Botany, learning about the objectives, methods, and significance of fieldwork in plant science. The session covered essential aspects of planning, including selecting the study area, identifying target plant species, and preparing the necessary equipment.

Safety Protocols and Equipment for Fieldwork

Safety during fieldwork was emphasized, with students being briefed on the potential hazards and how to mitigate them. They were taught how to use field equipment such as plant presses, GPS devices, and notebooks for data recording. The session also included instructions on the ethical considerations of collecting plant samples, ensuring that students understand the importance of conservation and minimizing their impact on the environment.

Writing of Field Visit Report

After the conceptual session, students were demonstrated how to sort and identify collected plant samples. They were guided on how to record and analyze field observations and data, focusing on the accurate documentation of plant characteristics and environmental conditions.

Day 7: Evaluation/Assessment

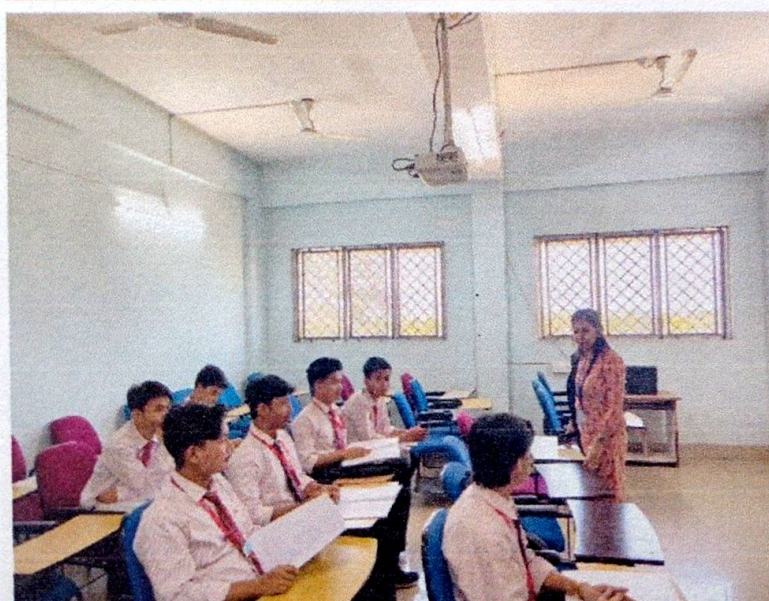
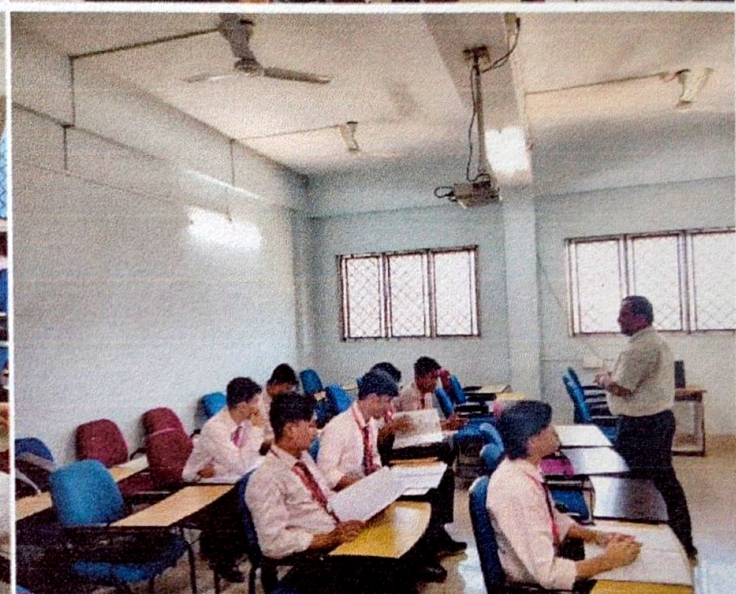
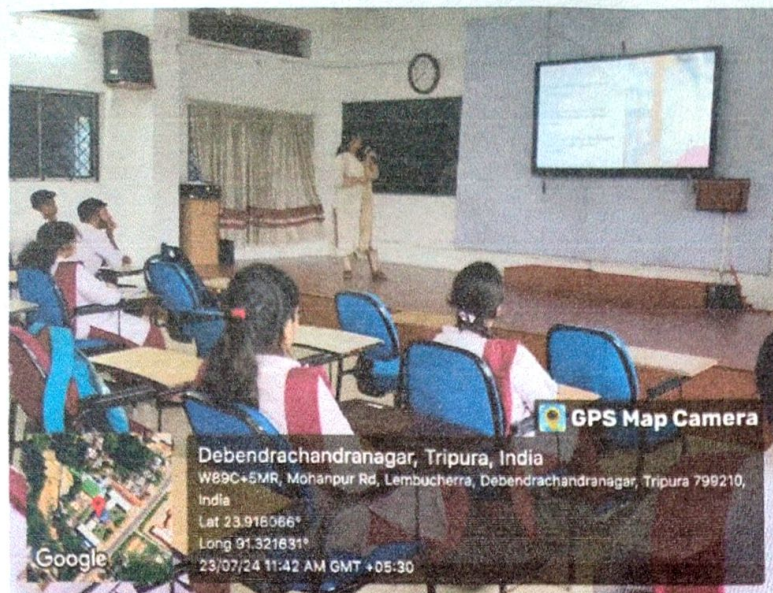
At the end of the course, a comprehensive evaluation was conducted, assessing both theoretical knowledge and practical skills. This ensured a well-rounded understanding, equipping students with the expertise needed for future applications in the field. Upon successful completion, each participant was awarded a certificate of completion.

Outcome of the Programme

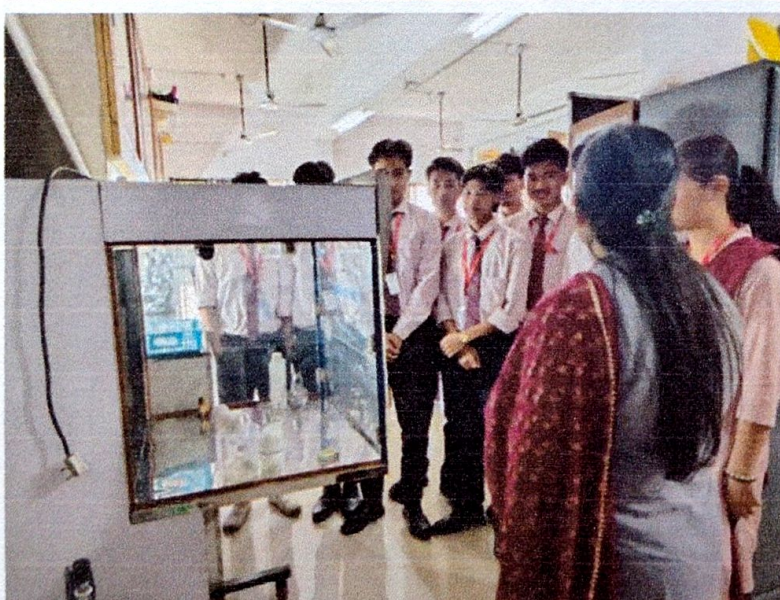
1. Students are now familiar with the progression of studies throughout the program, how credits are allocated and how marks are distributed, helping them plan their academic journey effectively.
2. Students gained a solid foundation in core botanical concepts, including plant diversity, anatomy, physiology, and ecology.
3. Students gained knowledge on using microscopes and other lab instruments, essential for studying plant cells and tissues, and ensuring lab safety.
4. The course taught students the art of preparing herbarium specimens, a critical skill for plant identification and taxonomy.
5. The course included fieldwork simulations, where students explored plant ecology, understanding how plants interact with their environment and other organisms.
6. The course equipped students with knowledge of the theory and practical examination formats, preparing them for assessments.

Conclusion

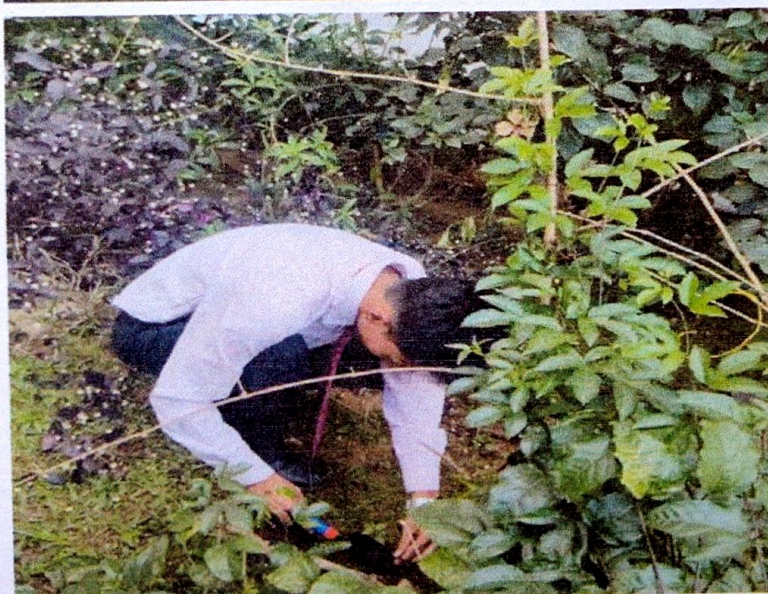
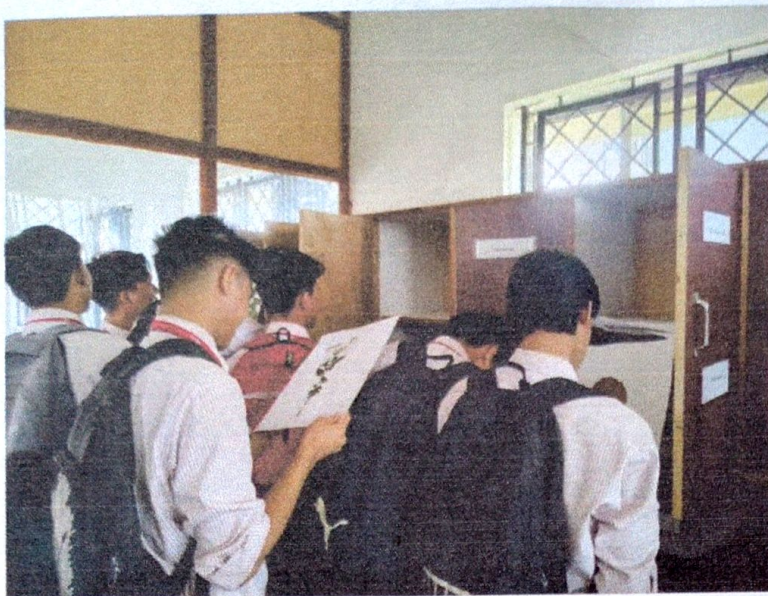
As a result of the bridge course, students gained a comprehensive understanding of the B.Sc in Botany program, including its structure, core and elective courses, and the credit and mark distribution system. They are now well-prepared to manage their academic workload and balance theoretical knowledge with practical skills. The course covered plant diversity, anatomy, and ecology, emphasizing Botany's significance and the importance of conservation. Through hands-on activities like microscopy, lab safety, fieldwork, and herbarium preparation, students acquired essential skills for laboratory and field research, bridging the gap between theory and practice while fostering a sense of environmental responsibility.



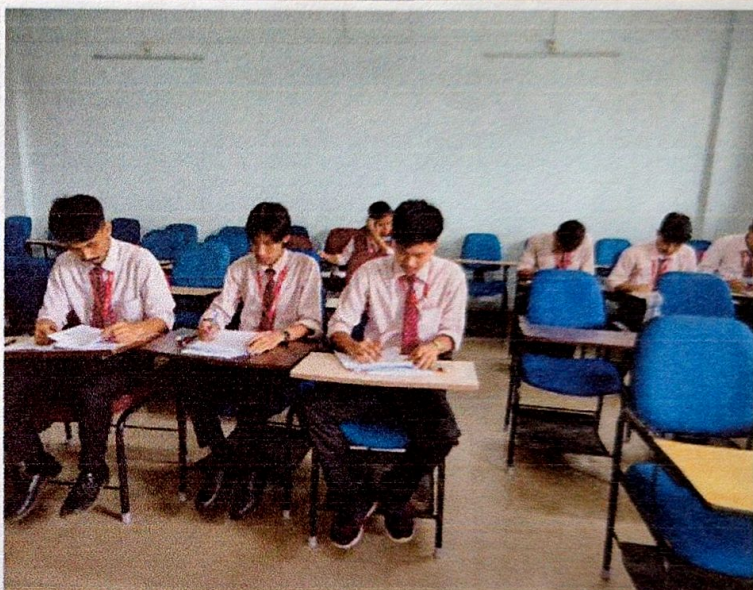
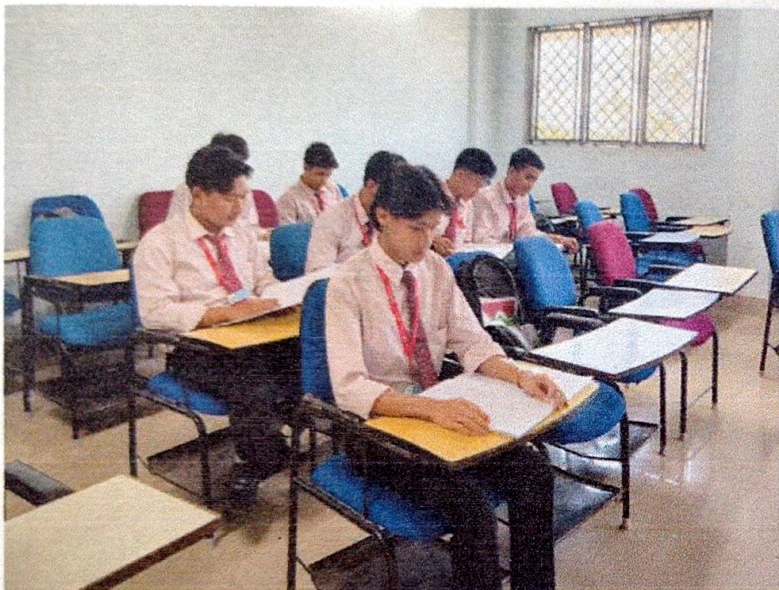
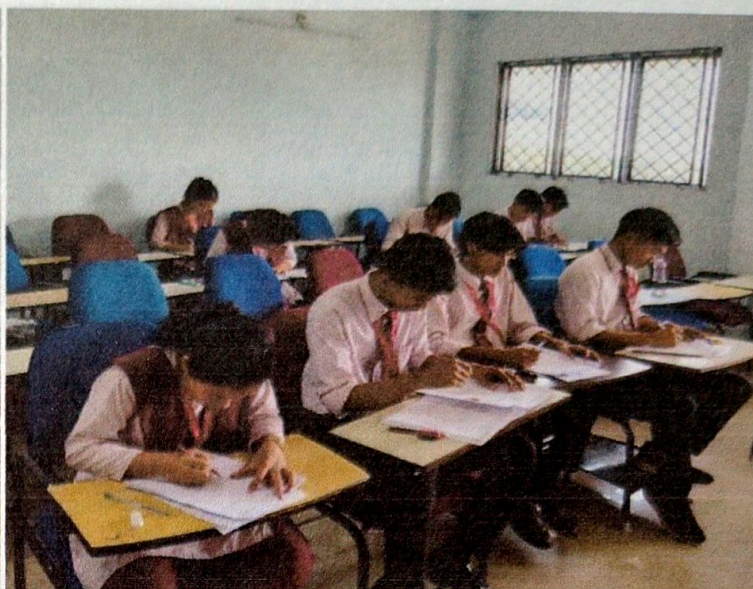
Pictures depicting an introduction to the course and subject, presented by the Faculties of Botany.



Pictures illustrating Practical Botany session where students were introduced to microscopy basics and essential lab safety guidelines.



Pictures depicting students being introduced to herbarium preparation, field visits and fieldwork.



Photographs showing the evaluation process being conducted for the students.

Report Prepared by

Sinha
5/8/2024

Dr. Sudipta Sinha
Assistant Professor
Department of Botany
Holy Cross College, Agartala

Lodh
05/08/2024

Dr. Debasree Lodh
HoD, Department of Botany
Holy Cross College
Agartala

HEAD
Department of Botany,
HOLY CROSS COLLEGE, AGARTALA



"Educating hearts and minds"

HOLY CROSS COLLEGE

ACCREDITED BY NAAC WITH 'A+' GRADE (CYCLE:2)

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To
The Principal
Holy Cross College
Agartala

Subject: Permission for conducting a Bridge Course for the students of first semester of the Department of Botany.

Respected Father,

This is to bring to your kind notice that the Department of Botany proposes to conduct a Bridge Course for the students of the first semester, 2024. The proposed name of the 7 days- Bridge Course is 'Fundamentals of Botany' from 22.07.2024 to 30.07.2024. The course will be designed to help the students to get a brief idea about their upcoming curriculum. In this regard we do hereby seek your permission for arranging the aforementioned course.

Thanking you,

With regards,

Date: 01.07.2024

Yours sincerely,

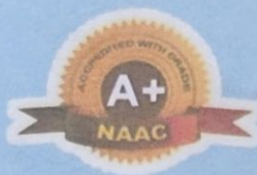
Dr. Debasree Lodh
01/07/2024

Dr. Debasree Lodh
Head, Department of Botany
Holy Cross College, Agartala

Approved
[Signature]
01/8/2024

VICE PRINCIPAL
HOLY CROSS COLLEGE
AGARTALA

HEAD
Department of Botany,
HOLY CROSS COLLEGE, AGARTALA



HOLY CROSS COLLEGE

Agartala, Tripura West

BRIDGE COURSE IN FUNDAMENTALS IN BOTANY

**ORGANIZED BY
DEPARTMENT OF BOTANY**



Enhance your Botany knowledge today

Date- 22.07.2024 to 30.07.2024

Venue- Botany Department F2-3(A), 3(B), F2-5

HOLY CROSS COLLEGE, AGARTALA

Department of Botany

Bridge Course for NEP (2020) First Semester Botany

Course Title: Fundamentals of Botany

Session: 2024-25

Syllabus

Module-I

Introduction to Course Structure

1. A general introduction about the Course Structure (B.Sc in Botany).
2. Credit and Mark distribution, and Scheme of theory and practical examinations.

Introduction to Botany

1. Overview of Botany's significance and career paths.
2. Introduction to plant diversity and major branches of Botany.

Plant Classification

1. Key plant groups: Algae, Bryophytes, Pteridophytes, Gymnosperms, and Angiosperms.

Module-II

Plant Anatomy

2. Study of plant organs: Roots, stems, leaves, and flowers.
3. Functions and adaptations of different plant parts.

Plant Ecology

1. Adaptations of plants to various environments and ecosystems.
2. Plant interactions with other organisms, including pollinators and competitors.

Conservation and Sustainability

1. Importance of plant conservation.
2. Current environmental issues.

Module-III


Introduction to Practical Botany

1. Microscopy Basics
 - ✓ Introduction to microscopy and its importance in Botany.
 - ✓ Hands-on activity: Preparing and observing plant cells and tissues under a microscope.
2. Lab Safety
 - ✓ Handling of Instruments
3. Concept of Field visit/Botanical Excursion
 - ✓ Planning for fieldwork, including safety protocols and equipment.
4. Writing of field visit report
 - ✓ Sorting and identifying collected plant samples.
 - ✓ Recording and analyzing field observations and data.
5. Herbarium Preparation
 - ✓ Use of plant specimens and herbarium sheets for identification.

Prepared By

- a. Dr. Dipanwita Chaudhuri Sil, Assistant Professor, Department of Botany
- b. Dr. Debasree Lodh, HOD, Department of Botany
- c. Dr. Somnath Kar, Assistant Professor, Department of Botany
- d. Dr. Sudipta Sinha, Assistant Professor, Department of Botany


PRINCIPAL
HOLY CROSS COLLEGE
AGARTALA


12/07/2025
Head
Department of Botany
Holy Cross College, Agartala
HEAD
Department of Botany,
HOLY CROSS COLLEGE, AGARTALA

HOLY CROSS COLLEGE, AGARTALA

Department of Botany

Evaluation For Bridge Course in Fundamentals in Botany

Date: 30.07.2024

Time: 9:00 to 9:50 am

Venue: F2-5

1st Semester Botany (Major)

NEP- 7th Batch

Attendance

Sl. No	Admn. No.	Name of Students	Major	Signature
1	HCCBOT2024001	Braine Jamatia	Botany	(AB)
2	HCCBOT2024002	Labani Debbarma	Botany	Labani Debbarma 30-07-2024
3	HCCBOT2024003	Shuvadip Debbarma	Botany	Shuvadip Debbarma 30-07-2024
4	HCCBOT2024004	Angel Debbarma	Botany	Angel Debbarma 30-07-2024
5	HCCBOT2024005	Paris Debbarma	Botany	Paris Debbarma 30-07-2024
6	HCCBOT2024006	Pritam Debbarma	Botany	Pritam Debbarma 30-07-2024
7	HCCBOT2024007	Aditya Debbarma	Botany	Aditya Debbarma 30-07-2024
8	HCCBOT2024008	Moumita Muhuri	Botany	Moumita Muhuri 30-07-2024
9	HCCBOT2024009	Karim Tripura	Botany	Karim Tripura 30-07-2024
10	HCCBOT2024010	Khaphang Uchoi	Botany	Khaphang Uchoi 30-07-2024
11	HCCBOT2024011	Suhani Debbarma	Botany	Suhani Debbarma 30-07-2024


30/07/2024
HEAD
Department of Botany,
HOLY CROSS COLLEGE, AGARTALA



HOLY CROSS COLLEGE

Agartala

Affiliated with Tripura University (A Central University)

Accredited by NAAC with A+ Grade (Cycle:02)

This is to certify that

Karim Tripura

of First Semester, Botany Major

has successfully completed the Bridge Course in
"Fundamentals of Botany" with grade A⁺

conducted by

the Department of Botany, Holy Cross College, Agartala
from 22nd July 2024 to 30th July 2024.

This course provided fundamental knowledge in Botany,
preparing students for advanced studies in the subject.

Head
Department of Botany
Holy Cross College, Agartala

Dr. Fr. Benny K John, CSC
Principal
Holy Cross College