

**Department of Botany  
Nagaland University, Lumami 798 627**

**Syllabus for 'Certificate Course'**

[Approved by \_\_\_\_\_ Academic Council (\_\_\_\_\_) held on \_\_\_\_\_]

The 'Certificate Course' in the Department of Botany, Nagaland University is of **'6 (six) months** duration. Students would be required to earn **6 credits (150 marks)** for award of the 'Certificate Course' certificate. Of the 6 credits, **ONE theory paper will carry TWO credits (50 marks) and ONE Practical paper equivalent of FOUR credits (100 marks)**. Candidates having undergraduate degree in any discipline can apply for the course.

Students will be evaluated in the form of 'Terminal Examinations' both for Theory and Practical papers. Students Scoring minimum of **60% marks on average** will be awarded the 'Certificate'

**Expected Programme Outcomes**

- *On completion of the course, students can start their 'Entrepreneurial Unit'/ Start-up.*
- *Also can seek job in the private sector companies in the relevant domain and or Govt. sector units/organization.*
- *Will help in uplifting rural livelihood /self employment.*
- *Will help in getting soft bank loan for Start-up.*
- *Will train the community leaders engaged in conservation programs.*

**DEPARTMENT OF BOTANY  
NAGALAND UNIVERSITY LUMAMI - 798627**

**Course 1: Certificate Course on 'Biodiversity Studies'**

**Theory Paper**

**Paper Title: Biodiversity Study & Course No. BOT/CC-BS(T)-101 (Credit – 02)**

**Unit-I**

Introduction to biodiversity: Definition of biodiversity, level of biodiversity, uses and values of biodiversity. Biodiversity profile of India. Major ecosystems (terrestrial, wetlands, grassland, deserts. Biodiversity Hotpots in India; Endemism. Non Timber Forest Produce (NTFP), Innovation of traditional practices in Ethnomedicine and uses of Bioresources. Threats to biodiversity loss.: Land use and land cover, Fragmentation, habitat loss.

**Unit-II**

Conservation issues and efforts: Strategies for conservation. Community conservation initiatives. Protected Areas (PAs) and their relevance in conservation of biodiversity in India (State relevant) Protected Areas (PAs) and their relevance in conservation of biodiversity in India. Biodiversity act, laws, rules and regulation. CBD, ITK. Peoples Biodiversity Registers (PBRs). National biodiversity board, Role of biodiversity management committee.

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Certificate Course on 'Biodiversity Studies'

**Paper Title: Biodiversity Study & Course No. BOT/CC-BS(P)-102 (Credit - 04)**

**Practical**

1. Biodiversity survey and inventories
2. Collection and preservation of vouchers specimen- Herbarium techniques
3. Techniques in ecological studies
4. Qualitative and Quantitative mapping of plant diversity
5. Measurement of Diversity
6. Diversity indices
7. Introduction to Geographical Information systems
8. Introduction to Google Earth and GIS software-ArcGIS, QGIS and Google Earth
9. Documentation of ITK using RPA method
10. Preparation of PBR
11. Visit to nearby Protected Areas (National Park, Wildlife Sanctuaries, Riparian forest sites, Medicinal plants conservation areas (MPCAs), Protected Forest Areas, botanical gardens

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Course 2: Certificate Course on 'Orchid Tissue Culture'

Theory Paper

**Paper Title: Biodiversity Study & Course No. BOT/CC-OTC(T)-101 (Credit – 02)**

**Unit-I**

Introduction of Plant Tissue Culture; PTC media and Growth Regulators; Plant material collection, Media preparation, Explants Sterilization; Steps in Plant Tissue Culture.

**Unit-II**

Immature and mature seed culture; Alternate explants culture; Culture proliferation; Hardening of regenerates; Potting of Regenerates; Low cost tissue culture protocols.

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Name of the Course: Certificate Course on 'Orchid Tissue Culture'

Practical Paper

**Paper Title: Orchid Tissue Culture; Course No. BOT/CC-OTC(P)-102 (Credit – 04)**

1. Field survey for germplasm collection
2. Stock preparation.
3. Culture media preparation.
4. Explants collection, maintenance and sterilization
5. Green pod culture
6. Mature seed culture
7. Regeneration and culture proliferation
8. Preparation of potting mix
9. Transplantation and maintenance in the polyhouse and field establishment.
10. Use of agar alternatives in culture media.

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