



सिद्धार्थ विश्वविद्यालय, कपिलवस्तु, सिद्धार्थनगर

**Syllabus of Pre-Ph.D. Course Work**

**Subject: Botany**

**Paper-I: Research Methodology**

**Unit-1**

- **Manuscript:** Preparation of review, articles, research papers, books, research projects.
- **Literature:** Survey and presentation of data.
- **Staining techniques:** Simple, double, negative, differential and cytological staining

**Unit-2**

- **Micrometry:** Basic principles and applications,
- **Microscopy:** Principles of microscopy, phase contrast and electron microscopy,
- **Principle functioning and uses of:**  
Micrometer, Centrifuge, Chromatography (Column, TLC, GLC & HPLC )

**Unit-3**

- Electrophoresis, Spectrophotometer, tracer techniques, Bomb Calorimeter
- Kjeldhal apparatus, Clevenger's apparatus, P.C.R., Blotting

**Unit-4**

- Culture Media
- Methods Of Sterilization
- Isolation And Purification
- Estimation Of Carbohydrate, Protein, Nucleic Acid And Chlorophyll

**Unit-5**

- Vegetation Analysis: Phyto-Sociological Methods, Modeling Of Ecological System and Remote Sensing.
- Estimation Of Carbon And Nitrogen In Soil
- Water Analysis: D.O., C.O.D., Nitrates, Phosphates, T.S., T.D.S. And T.S.S.
- Coli Index

## **Paper-II : Basic Computer Application**

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| <b>Unit-1</b> | Computer Fundamentals,<br>What is Desktop PC System?<br>Working of a Monitor,<br>Keyboard,<br>Mouse,<br>Hard Disk,<br>Compact Disk and Printer |
| <b>Unit-2</b> | Working with the Control Panel<br>Customize your Desk top<br>Working with files and folders  |
| <b>Unit-3</b> | Features of MS-Word<br>Working with MS-Word, Formatting documents and texts  |
| <b>Unit-4</b> | Introduction to Excel and Power Point Presentation   |
| <b>Unit-5</b> | Working on Internet and e-mail   |