



सिद्धार्थ विश्वविद्यालय, कपिलवस्तु, सिद्धार्थनगर

**Syllabus of Pre-Ph.D. course work**

**Subject: Chemistry**

**Paper-I: Research Methodology**

**Unit-1 Safety, Hazards and precautions in Laboratory (7)**

Brief Idea about Toxicity, explosive nature and ill effects of various chemicals generally used in research and precautions to handle them

**Unit-2 Purification of chemicals (8)**

An Idea about LR, GR. and AR grade chemicals. A brief knowledge about various techniques such as distillation, fractional distillation, crystallization, fractional crystallization, chromatography, etc

**Unit-3 Data analysis (5)**

Errors in chemical analysis, classification of errors, determination of accuracy of methods, significant figures, mean and standard deviation, least square method of analysis of fitting the data

**Unit-4 Experimental Methods in Chemical Research (10)**

SEM, TEM, LEED, DTA, TGA, Magnetic susceptibility

**Unit-5 Structure elucidation of spectral data (IR, UV, NMR, ESR, Mass) (10)**

A few examples only

## **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   |