

2. VACA-02: Basic concepts in Laboratory Techniques

Total Hours: 30

Course Objectives

1. To impart basic knowledge about safety measures and good laboratory practices.
2. To develop an understanding of the basics of sterilization techniques.
3. To develop the skills to analyze different methods of preparation of solutions.
4. To impart the knowledge of handling sophisticated laboratory equipment and instruments

Course Outcome

1. Upon successful completion of the course students can acquaint knowledge and develop skills of commonly used techniques in the laboratory

SYLLABUS

Unit I

Safety measures while in Lab; Handling of chemical substances; Use of burettes, pipettes, measuring cylinders, flasks, separatory funnel, condensers, and micropipettes.

Unit II

Washing, drying, and sterilization of glassware; Drying of solvents/ chemicals; Weighing and preparation of solutions of different strengths and their dilution.

Unit III

Handling techniques of solutions; Preparation of different agrochemical doses in field and pot applications; Preparation of solutions of acids; Neutralization of acid and bases; Preparation of buffers of different strengths and pH values.

Unit IV

Use and handling of the microscope, laminar flow, vacuum pumps, viscometer, thermometer, magnetic stirrer, micro-ovens, incubators, water bath, Hot air oven, Autoclave, centrifuge, spectrophotometer etc.

References:

1. Furr AK. 2000. CRC Handbook of Laboratory Safety. CRC Press.
2. Gabb MH and Latchem WE. 1968. A Handbook of Laboratory Solutions. Chemical Publ. Co.
3. Lippincott, W. T., Gailey, K. D., Meek, D. W., and Whitten, K. W. (1984). Experimental general chemistry. Philadelphia, PA: Saunders.
4. Willard, H. H., Merritt, L. L., Jr., Dean, J. A., and Settle., F. A., Jr. (1988). Instrumental methods of analysis (7th Ed.). Belmont, CA: Wadsworth.

H. Min

Director
निदेशक

Narayan Institute of Agricultural Sciences

University of Agriculture, Bihar

Gopal Narayan Singh University

औद्योगिक विभाग, रोहतास (बिहार)

Jamuhar, Sasaram, Rohtas (Bihar)

जमुहार, सासाराम, रोहतास (बिहार)

Lij
Coordinator
IQAC (NAAC)

Gopal Narayan Singh University
Jamuhar, Sasaram, Rohtas (Bihar)