

DEPARTMENT OF ZOOLOGY

COURSE CURRICULUM AND MARKING SCHEME

VALUE ADDED COURSE

ON

LABORATORY ETHICS AND LAB. SAFETY

SESSION: 2022-23



GOVT. V.Y.T. PG AUTONOMOUS COLLEGE, DURG, 491001 (C.G.)

(Former Name – Govt. Arts & Science College, Durg)

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VALUE ADDED COURSE

on

“Laboratory Ethics and Lab. Safety”

By

Dept. of Zoology

Govt. VYT PG Autonomous College, Durg

1. INTRODUCTION:

Lab safety is all about being aware of our surroundings as well as cultivating a specific skillset that is used to keep us and our lab safe. Lab safety is often broken down into smaller components, like recognizing hazards, minimalizing risks, and more. When working in a lab, it is important to be familiar with the equipment in working space, even if you don't use it yourself. It's also crucial to be cautious of what other researchers, coworkers and peers are doing/using around you.

There are many reasons why it's important to practice lab. Some of the most important reasons of Lab. Safety are protects equipments, prevents cross contamination, ensure accurate record keeping, etc.

We all know that know glass is fragile. Working with glassware in labs, it is important to handle it with care and also to wear protective eye wear. Beakers, test tubes and flasks should be inspected for chips or cracks before use. One should always wear protective, chemically-resistant gloves when working with chemicals in glass containers, along with other necessary protective equipment.

From chemicals and compressed gases to glassware, electrical equipment, cryogenics and vacuum pumps, laboratories are filled with dangerous tools so working carefully, safely and attentively to protect from injury.

Maintaining the routine time table a value Added Online course is designed for UG and PG students of Life Science faculty of the college to get acquainted and develop skill under a framed setup along with their regular studies.

Course Outcome:

Upon successful completion of the course, students are expected to be able:

- To get knowledge about laboratory safety rules
- To get the knowledge about laboratory ethics
- To develop skill of maintaining a safe laboratory

The key features are:

- Short-term skill based training programmes
- Identification of “minimum skills set” sufficient to get employment
- Flexible training delivery mechanism
- Opportunity for lifelong learning

Statement of learning outcomes:

1. Working Process: Person may establish a small scale industry or a domestic business/generate employment for others.
2. Professional knowledge: Basic facts, process and principle applied
3. Professional skill: Recall and demonstrate practical skill, routine and repetitive work in narrow range of application
4. Core skill: Communication with oral and written modes with minimum required clarity

2. GENERAL INFORMATION AND COURSE STRUCTURE

1. Duration of Modular Training: 30 hrs.
3. Entry Qualification: UG and PG students of life sciences
4. Trainees per unit: 20
5. Language: Hindi/English
6. Teaching Mode: Online through LMS, Video and PDF notes etc.

Distribution of training on Hourly basis:

Sl	Broad Theory and Practical components to be covered	Duration (in Hrs)	Theory	Practical	Days
1.	Laboratory Safety Rules: Good Laboratory Practices, General safety guidelines, Laboratory attire, Hygienic practices	4	2	2	2
2.	Washing of Glassware and Wrapping: Basic steps of cleaning for glasswares and plastic wares	6	3	3	3
3.	Methods of Sterilization: Moist Heat Sterilization, Dry Heat Sterilization, Gas Sterilization, Sterilization by Radiation, Sterilization by Filtration	8	4	4	4
4.	Basic science lab Instruments and their principle	4	2	2	2
5	Standardization of Instruments	8	4	4	4

Total	30	15	15	15
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3. GENERAL TEACHING PLAN, ASSESSMENT & CERTIFICATE:

General Teaching Plan:

The knowledge and skill components as stated in the section for „learning outcomes“ are to be imparted in accordance with the instructions in respect of the content and time structure. Both the theory and practical will be conducted online using synchronous and asynchronous modes based on suitable LMS

Assessment:

The competency assessment will be done by the departmental assessor ensuring an impartial assessment. The assessment process through Assessing Bodies aims to test and certify the competency of the student.

Candidates are to demonstrate that they are able to do the followings under assessment:

1. Plan and organize work processes, identify necessary materials and tools
2. Perform task with due consideration to safety rules, accident prevention regulations and environmental protection stipulations
3. Apply professional knowledge and Computer literacy while performing the task.

Examination:

Both the theory and practical examination will be conducted online using synchronous and asynchronous modes based on suitable LMS

Pass regulation:

Minimum passing marks for Practical is 60%

Minimum pass marks for Theory is 40%

Certificate:

Successful candidate will be awarded training certificates issued by the College.

4. SYLLABUS CONTENT Detailed Syllabus:

Theory	Practical
Laboratory Safety Rules: Good Laboratory Practices, General safety guidelines, Laboratory attire, Hygienic practices	<ul style="list-style-type: none"> • Identification of different hazardous compounds • Demonstration of laboratory attire
Washing of Glassware and Wrapping: Basic	<ul style="list-style-type: none"> • Preparation of washing solutions

steps of cleaning for glasswares and plastic wares	<ul style="list-style-type: none"> • Demonstration of glassware washing • Demonstration of Plastic ware washing
Methods of Sterilization: Moist Heat Sterilization, Dry Heat Sterilization, Gas Sterilization, Sterilization by Radiation, Sterilization by Filtration	<ul style="list-style-type: none"> • Demonstration of sterilization process
Basic science lab Instruments and their principle	<ul style="list-style-type: none"> • Display of Instruments and demonstration of their working principles
Standardization of Instruments	<ul style="list-style-type: none"> • Demonstration of Standards Operating Process for standardization of general Instruments

5. ASSESSMENT STANDARD

5.1 GUIDELINES FOR INSTRUCTORS AND ASSESSORS

Due care to be taken for proper & inclusive delivery among the batch. Some of the following method of delivery may be adopted:

- A) LECTURE
- B) PDF/ VIDEO LESSON
- C) DEMONSTRATION VIDEO
- D) GROUP DISCUSSION

5.2 ASSESSMENT GUIDELINE:

The nature of special needs should be taken into account while undertaking the assessment. Due consideration shall be given while assessing for teamwork, behavioural attitude, sensitive to environment and regularity in training. The sensitivity towards self-learning attitude shall be considered while assessing competency.

1. Assessment will be evidence based comprising the following:
2. Answer sheet for assessment
3. Viva-voce
4. Attendance and punctuality
5. Project work

Evidence of internal assessment should be preserved for an appropriate period of time for audit and verification by examination body.

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Examination/ Evaluation will be done by offline mode. The following marking pattern to be adopted while assessing:

S.No.	Parameters	Assessable outcomes	Marks
1.	Skill	Remember, Recognize and Comply safe working practices	20
2.	Understanding and Expressions	Understand the working procedure and basic skills for repetitive work	20
3.	Neatness and Promptness of work	Apply, demonstrate knowledge of concept and principles of basic arithmetic calculation and apply knowledge of specific area to perform practical operations.	30
4.	Support required for Project work	Analyse, Explain and Evaluate time management, entrepreneurship and manage/organize related task in day to day work for personal & societal growth	30
Total			100

The syllabus for Value added course on Laboratory Ethics and Lab. Safety is hereby approved for the Session 2022-23

Name and Signatures

<p>Chairperson /H.O.D <i>[Signature]</i> 25/7/22</p> <p>University Nominee <i>[Signature]</i> 25/7/22</p> <p>Subject Expert <i>R.P. Kumar</i> </p> <p>Subject Expert <i>[Signature]</i> 25/7/22</p> <p>Representative from Industry/entrepreneur <i>[Signature]</i></p> <p>Student representative <i>Dollydaly</i> </p> <p>Other Prof. from Science faculty <i>[Signature]</i></p>	<p>Departmental members</p> <p>1. <i>[Signature]</i> 25/7/22 </p> <p>2. <i>[Signature]</i> </p> <p>3. <i>[Signature]</i> </p> <p>4. <i>[Signature]</i> </p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p>
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